INDIA RUBBER WORLD

Published on the 1st of each Month by

THE INDIA RUBBER PUBLISHING CO.

No. 150 NASSAU ST., NEW YORK.

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Vol. 29. DECEMBER 1, 1903. No. 3.

SUBSCRIPTIONS: $3.00 per year, $1.75 for six months, postpaid, for the United States and Canada. Foreign countries, same price. Special Rates for Clubs of five, ten or more subscribers.

ADVERTISING: Rates will be made known on application.

DISCONTINUANCES: Yearly orders for subscriptions and advertising are regarded as permanent, and after the first twelve months they will be discontinued only at the request of the subscriber or advertiser. Bills are rendered promptly at the beginning of each period, and thereby our patrons have due notice of continuance.

Entered at New York Post Office as mail matter of the second-class.

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THE OPENING FOR RUBBER EXPERTS.

NOT a few letters reach us from time to time inquiring about the outlook in the India-rubber industry for a young man of technical training. Such a letter is now before us, the writer of which, having become much interested in rubber in the course of his studies in a scientific school, is moved to ask "if there is any field for rubber experts?" We assume that his inquiry relates to the rubber factory, and shall venture to answer accordingly, though scientific work is beginning to be called for in the production of rubber no less than in the manufacture of rubber goods.

The opportunities in rubber factories for technically trained men are doubtless increasing, owing to the fact that rubber manufacturers, in common with all others, are coming to realize more fully the advantages of modern scientific methods of systematic study of the conditions and problems connected with their industry. The single fact that the leading railway companies now demand that their more important supplies of rubber goods shall conform to definitely specified requirements in construction and quality, has a far reaching significance and influence with the manufacturers. They are awaking in general to the value of the scientific method, and are gradually dropping antiquated machinery and processes and even relaxing the traditional secrecy that has so long hampered progress in the rubber industry.

The man with a technical education has ample opportunities in many industries, and generally in proportion to the magnitude of the industry. The financial success of the Standard Oil Co., for example, has been due to nothing else so much as to the expert scientific work which the directors of that great corporation have been wise enough to employ, in utilizing to the utmost every constituent of their raw material, and at a minimum cost, so as to place the products within the reach of the greatest possible number of buyers. And the great prominence of the steel industry is a direct result of chemical science. The rubber industry is especially inviting to the chemist or chemical engineer, and while the total volume of the industry must ever remain small in comparison with some others, and the possible financial reward of the scientific worker may not be so great, there must always be desirable positions open for expert work of the right kind. Successful competition in the rubber industry, as in every other, demands a scientific knowledge of the possibilities of the materials employed and thorough study of the economics of manufacture. This means the devotion of somebody to the mastery of these details and, in the end, advantage to the company employing him. The crowded scientific schools of the United States—not to mention those elsewhere—and the wide extending *clientele* of the correspondence schools, attest the extensive development of an influence which is to react on the industries of the nation and, through the work of trained men, modernize and advance the methods of manufacture in every line.

The literature of India-rubber, of comparatively recent origin, is rapidly growing in volume and becoming more

important in quality. For a generation after the discovery of vulcanization there was practically nothing available for the "rubber man's library" outside of a single work each by Goodyear and Hancock—books which now possess little more than historic value. Twenty years ago there did not exist so much as a trade journal devoted to rubber interests. To-day, while the number of volumes devoted to rubber science is not extensive, a few books have appeared which are particularly notable in helping to make clear some of the complex problems connected with the nature of India-rubber, and its employment in industry, while in several journals devoted exclusively to the trade, as well as in a host of other technical journals, there are constantly appearing articles by competent men which mark a distinct advance in our knowledge of rubber, and which cannot fail to prove of benefit to the rubber industry and all who are employed therein. All of this is the outcome of expert investigation done in connection with rubber, and in this utilitarian age such work would not be persisted in for the mere love of labor; somebody is benefiting by it.

We are far from belittling the work of the founders of the rubber industry, none of whom were men of scientific training. It is vastly to their credit that, imbued with an idea of the possibilities of the industry, they struggled against so many disadvantages and wrought so much. But they were contemporaries of men in other industries who groped in the dark and made discoveries often by accident. Constantly working with their hands, their minds became trained through thinking over the results. The more modern idea is to start with a trained mind, for the better guidance of the hands. Not that every technical graduate may hope to step into a rubber factory and displace a graduate from the mill room who was at work before the college man was born; he may count himself fortunate if he ever knows as much as the older man has learned about rubber under the old *régime*. But the time must come when, with two boys starting in life together, and both made of the same material, the one with a technical preparation will have a better chance for a high position in the rubber industry than the one who laboriously educates himself in the factory.

RUBBER PLANTING IN CEYLON.

CEYLON is experiencing a veritable "boom" in the rubber planting interest, evidenced by the organization of many joint stock companies for the opening of new plantations on an extensive scale. The new companies are basing their estimates of profits upon the success attained by a number of tea planters who are already producing rubber on a small scale, and the further fact that considerable private planting of more recent date gives promise of equally good results. There certainly is encouragement to be found in the early productiveness of the *Hevea* species in Ceylon, as compared with the same trees in Brazil, in the rate of yield, in the quality of rubber produced, and the high prices obtained in London. It does not follow, however, that uniform success is to be attained in every case, or that all the promises of the company prospectuses can be made good, especially where a heavy initial outlay is made for some estate which has proved unremunerative under other crops, or if an expensive administrative system is planned. But every business is bound to show some failures, and the prospect for rubber culture in Ceylon, on the whole, appears distinctly favorable.

The financial details of the new Ceylon companies may be of interest to those engaged in forming rubber planting companies elsewhere. The articles of association provide generally for a "nominal" capital of a certain amount, in shares of 100 rupees [=£6 13*s.* 4*d.*, or $32.44]. An "initial issue" of shares of less than the whole capital is offered for public subscription, to apply to purchase money and to provide the first working capital. The intention is to issue shares only as development capital is needed, through a term of several years. The vendors of lands, improved or otherwise, as a rule accept shares in part payment. Generally tea or coffee or some other product already on an estate is mentioned as promising returns during the period required for the development of rubber, though no definite rate of dividend is assured. But estimates are given of the cost of cultivation and management, and the expected return of rubber, so that, even in the event of a decline in price, "there still remains a very handsome profit." A circumstance favorable to the new undertakings is the fact that the large tea plantations of Ceylon as a rule are owned and managed by joint stock companies, so that the investing public there is accustomed to putting money into planting enterprises, and much English capital has also been placed there in this way.

The Ceylon press has properly advised some caution in regard to the new planting interest. For example, where company prospectuses, referring to current London prices of Ceylon rubber, have provided for the contingency of a fall of 33⅓ per cent. before the new plantations are productive, the *Times of Ceylon* suggests that the figure should be 50 per cent. Another suggestion by the same journal is the possible danger of the rubber tree in Ceylon suffering from pests or maladies. Already some discussion has appeared in that journal on the rubber "canker," which is being investigated by Mr. J. B. Carruthers, the government mycologist. Mr. R. W. Harrison, chairman of the Kalutara Planters' Association, having objected to any public mention of the matter as injudicious, the editor of the *Times of Ceylon* remarks:

> Most of us remember the indignation of the cacao planters at the publicity which helped so much to secure scientific aid in time to put that industry on its feet again. Nowadays planters are better off, and there is more prompt attention given both by producers and by the agricultural department to the first indications of trouble; but it is useless to demand secrecy which would do more than anything else to undermine public confidence.

It would be strange if the acclimatization of the *Hevea* in Asia should be unaccompanied by some malady to which it has not been known to be subject in America. The transference of some other economic plants from their native *habitat* has developed in them unfavorable conditions which in time have been remedied by science, and

this very fact should prevent the complete discouragement of the Ceylon rubber planters at the first indication of any troubles with their trees.

THE ACRE SETTLEMENT.

THE effective protest made by the Brazilian government against the terms of the "Acre concession" granted by Bolivia to the Bolivian Syndicate, the details of which we printed in April last, was followed by diplomatic negotiations between the two republics, the result of which already is a treaty about to be signed, and which, on its face, would appear likely to prove mutually advantageous. Brazil will have more territory and more revenue, and Bolivia has in prospect the better development of the territory left to her.

Bolivia, it is true, quits all claim to the greater part of the disputed Acre district, an area of about 66,000 square miles, generally regarded as the richest rubber district in the world, and having other resources worth considering. But this territory, on account of its remoteness from the seat of government and the difficulties of communication, had never been administered with success by Bolivia, while capital was lacking in the country for its commercial development. When an attempt was made, a year or two ago, to induce the investment of foreign capital on a large scale, the opposition of Brazil, in refusing transit through her territory, completely blocked the only outlet to the sea, thus rendering the Acre grant of little value.

The fact is that the contention of the Brazilians that the Acre district belongs naturally to their country has some foundation. It is accessible only by means of water courses which flow through Brazil into the Amazon, being thus only an extension of the Amazon watershed. Besides, such population as exists in the territory, apart from the Indians, consists mainly of Brazilians who have ventured there in quest of rubber, without protection or encouragement from Bolivia. Any attempt of Bolivia to extend its authority over these people was resented by them, while Brazil held that her citizens on the Acre had acquired rights by the mere act of settlement in hitherto unoccupied territory.

Bolivia had, however, certain rights under old treaties, though these were capable of different constructions, and in consideration of these Brazil agrees to pay a cash indemnity, to grant perpetual free transit through her territory, and, what promises to be of most importance, to construct a railway around the obstructions in the Madeira, the most important of Bolivia's natural outlets. The extensive system of rivers, draining a much larger portion of Bolivia than the whole Acre region, and a portion which has been developed to a greater extent, converges to form the Madeira, which in turn discharges into the Amazon. But for a series of formidable cataracts in the Madeira, Bolivia would have a system of waterways for internal communication such as is not surpassed in any other country, the whole connecting with the seaboard. The proposal to build a railway around the falls—a distance of 200 miles or more—is not new, but the expense involved in a country without capital and where much time must elapse before such an undertaking could become commercially profitable, have prevented such an undertaking from being carried out.

If the Brazilian part of the new agreement is carried out in good faith, within a reasonable time, Bolivia as a whole should be in a better condition than if the plans of the Bolivian Syndicate had been left undisturbed, since the proposed field of operation of the latter was confined to the single territory of the Acre, without regard to developing the districts watered by the sources of the Madeira. Another point is that by the cession of her Acre territory, Bolivia is relieved from a possible boundary dispute with Peru.

The interest of the outside world in the whole situation relates to the development of the rubber resources involved. While there were hopes that, under a liberal and progressive policy such as the Bolivian Syndicate proposed, the rubber fields of the Acre would be opened much more extensively, it must be considered that the world's ever growing demand for rubber will cause it to be marketed in some manner, under whatever jurisdiction, and the removal of the friction between the two nationalities on the Acre will doubtless do much to stimulate rubber working there. In 1898 the official estimate of the rubber output from the Acre was more than 2000 tons; in 1900, owing to political troubles, it was only about 800 tons. In 1901 there was a heavy increase, followed in the next year by more troubles and the closing of the rivers. Peace on the Acre, therefore, may be expected to result in a permanently large rubber yield.

As for the regions of the Béni and Madre de Dios, connecting with the Madeira, the high cost of transport over the latter river has made it preferable to ship such rubber as has been collected there over the mountains to the Pacific. With the Madeira opened to commerce by means of a railway, there is reason to believe that such development might follow there as in the almost identical case of the Congo. Before the construction of the railway first suggested by Stanley, all traffic with what is now the Congo Free State was conducted by means of porterage, so that it was estimated that five years were required for a piece of cloth to find its way from the seaboard to regions which, with the help of about 200 miles of railway, are now reached in two or three weeks. The building up of a trade in Congo rubber of millions yearly has been due almost entirely to this little railway. The Bolivian rubber fields which the Madeira railway would open up are richer than anything in Africa, and the trees may be regarded as permanent, which is not true of the Congo rubber.

What assurance Brazil can give of building the promised railway is another matter. The cash indemnity promised to Bolivia should be easily arranged, by pledging the export duties on rubber from the Acre, which now becomes a Brazilian asset. But the relation of the government to the projected Madeira railway of twenty years ago, work on which was actually begun, under a guarantee of the public credit, must not be repeated if a railway is wanted now. And the history of the little street railway at Manáos,

the state subsidy for which, after being long in arrears, was finally paid in thirty-year bonds, is not such as to make any ordinary guarantee from the rubber states attractive to capitalists. Still, the world must have Bolivian rubber, and ultimately the neccessity for better transportation through the Madeira valley will result in a railway, regardless of local help or hindrance.

THE BUSINESS MAN'S MONROE DOCTRINE.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Diplomacy in the United States has a few cardinal principles, the most familiar of which is the Monroe Doctrine. This doctrine is that the United States will regard the acquisition of new territory by a European power on the American continent as an unfriendly act. Expressed in less diplomatic language, the doctrine means that whoever in Europe has an American colony is welcome to keep it, unless, as happened in Cuba, he administers it so badly as to injure the United States. But if Europe wants to expand it must go away from America, north or south, or be prepared to go to war with Uncle Sam. This doctrine is not supposed to be exactly popular in some parts of the European continent, but all Europe knows it must be reckoned with in dealings with the United States.

It is getting on toward a century since this doctrine was announced, and yet it has remained thus far a possession of the diplomats alone. The opening years of the twentieth century seem a fitting time for an extension of the Monroe doctrine to business. There is no reason in the nature of things why the United States should not be the center of the manufacturing and commercial interests of the whole Western hemisphere. The man who wants to send money ought to find New York bankers prominently established in every considerable town on the American continent. The man who wants to ship freight from or to South America ought to find direct shipment at or to American ports the easiest method. The man who wants to buy a machine in Valparaiso or Caracas or Rio de Janeiro ought to find machines made in the United States leading the market. "Made in the United States of America" ought to be the prevailing recommendation of manufactured articles of all descriptions.

Now, as a matter of fact none of these things happen. There are important cities in South America where London or Paris exchange is easier to buy than New York funds. Passengers and shippers often use the route via Liverpool or Havre, rather than the direct route, simply because the means of direct transportation are insufficient. And though our manufacturers have within the past few years terrified Europe with their invasion, American-made goods cut no figure at all in the market in many parts of South America. The situation in this regard has indeed vastly improved within a few years. The needs of the rubber trade have caused the establishment of good lines of freight steamers between New York and Pará, American exchange and American manufactures are gaining steadily. And yet it cannot be said that the business world of the United States has a Monroe doctrine of its own.

There are, of course, obstacles to the establishment of such a doctrine. In some respects the field itself is less inviting than others more remote. Collections and credits are supposed to be harder to manage in Latin America than in Europe or China. Government is less stable there than anywhere else in the civilized world. And indisputably the stronger nations of South America dislike the United States.

There are obstacles, too, for which our own business men are at fault. Until our new relations with Porto Rico, the Philippines, and Cuba made it necessary, practically no attention was given in this country to a study of colloquial Spanish. If a man wanted to do business in Spanish America he had to go and learn the language on the spot or hire a representative for his knowledge of Spanish without much regard to other qualifications. Nor have we sufficiently regarded the principle that the only way to success in business was to respect one's customers. If anyone in South America wanted something we made we have been willing enough to sell, but we have never taken the trouble to find out what South America wants and to satisfy the wants.

The establishment of a Monroe doctrine in business means a good many things. And first of all it means a respectful study of the field. Spanish must be taught and studied more widely even than it is now. The reasons for the instability of South American governments must be considered and it must be seen what business enterprise of the right sort will do to correct it. The popular dislike of the United States must be overcome by sending the right sort of men as representatives of business houses—men tactful, likable, frank, and cordial, who will enter into the habits and feelings of the men with whom they deal without loss of self-respect. And it must be overcome, too, by sending goods better than those that now hold the market. We like to believe that the United States does the best manufacturing in the world, as well as some of the worst. It is the best that gets and holds new markets. Spanish Americans are not so conservative as to prefer inferior goods because they are accustomed to them. Success in winning the market means sending superior goods in the care of representatives who know how to make their superiority manifest and to win the respect and liking of their customers. It means patience. Perhaps it may mean as long a waiting for large profits as is the case with cultivating rubber, but it will pay in the long run in more ways than one.

The Monroe doctrine of the business man can be established only by the business man himself. And it cannot be established in a minute by any one. Yet its establishment is one of the great opportunities of the present day, and we confidently expect to see the time when all the Western hemisphere will find its commercial as well as its political leadership in the United States. J. L.

November 17, 1903.

A SHREWD DEAL IN RUBBER BOOTS.

BURIED in the middle of a long article in the New York *Evening Post*, on "Our Trade in Rubber," is the following bit of information, never before published to our knowledge, and which would indicate that every man who makes "big money" in this trade does not at once proclaim the fact from the housetops:

"When the great rush to the Alaskan goldfields began, in 1899 and 1900, an immediate demand for rubber shoes of all kinds and rubber boots was anticipated by shrewd dealers. One speculator, who had an eye to business, knew of a large lot of rubber boots and shoes which had been in storage here in New York for several years, a drug on the market. He also knew that the owners would be glad to get rid of them at almost any price. Going to a banker who had confidence in his judgment, the man borrowed enough to get the whole stock, shipped it to Seattle, Spokane, and Tacoma, Washington, and to Portland, Oregon, where miners were getting their outfits, and sold every pair at a large profit."

Wonder if there are any more such hidden stocks?

THE NATURE OF VULCANIZATION.*

WHAT is Vulcanized Rubber? It is somewhat surprising that there is no established definite meaning for a term which is in such common use. The reason for this doubtless is that its meaning varies according to the class of persons that uses it. To the general public, it has no special meaning except that the rubber articles so designated are adapted to the purposes for which they were intended. To the dealer in such articles, it means scarcely more. To the manufacturer, it means that these articles have been subjected to the final step of a very complicated process, and, as a result, possess certain physical qualities. To the chemist, and to him alone, it means rubber that has become chemically united with sulphur. He has in mind the chemical change that has taken place during the vulcanizing operation. The manufacturer has in mind only the physical properties belonging to the product. If a certain percentage of sulphur has become chemically combined with the rubber, the chemist says it is vulcanized, the manufacturer that it is not vulcanized unless it possesses certain physical properties.

It is evident that there are great changes in the physical properties of rubber that is well vulcanized, but it is not an easy matter to define in simple terms what these changes are It is the common belief that vulcanized rubber is stronger more distensible, more elastic, and more durable than crude rubber. This is not, however, necessarily the case. Rubber freshly coagulated by the best methods is stronger, more distensible, and more elastic than almost any vulcanized rubber to be found on the market, a fact that is well known to those who are familiar with such crude rubber. Manufacturers are familiar with the fact that the durability of vulcanized rubber depends not so much upon the proper application of the vulcanizing operation as on its proper previous manipulation. Dr. C. O. Weber, who is probably the best authority on vulcanization, says in his excellent work, "The Chemistry of India-Rubber": "The physical state of the India-rubber colloid while under vulcanization largely determines the physical constants of the vulcanization product."

It is practically impossible to judge of the durability of most vulcanized rubber. Articles, to all appearances well vulcanized, may have within themselves the seeds of decay, which may develop in a few weeks, a few months, or not until after the lapse of several years. Manufacturers of vulcanized rubber threads—an article that probably requires more care in every step of the manufacture than any other—are accustomed to preserve and label one thread from each day's work for future reference. Some of these samples will remain sound for an indefinite period, others will begin to decay after five or six years, and others after two or three years. It is very seldom that any of the samples will show signs of decay sooner. And yet all have been subjected to precisely the same vulcanizing process; all were made of the same kind of rubber, the best in the market, and compounded precisely alike. These variations must have occurred through very slight differences in the physical condition of the samples at the time they were subjected to the vulcanization operation—differences so slight that they could not be detected by the most careful inspection, or the most careful chemical analysis, and which were brought about during the preparatory steps of the manufacture.

On the other hand, there is no uncertainty as to the durability of crude rubber. Crude rubber of the best varieties will retain all its useful properties for an indefinite period if preserved from the action of sunlight and heat, which are fatal to both crude and vulcanized rubber. Unvulcanized rubber shoes, manufactured from Pará rubber, have been kept for more than half a century without showing signs of decay.

Perhaps the best general definition of the physical qualities of Vulcanized Rubber is that given by Charles Goodyear in his original patent of 1844—that it is not affected by the ordinary extremes of heat and cold nor by the ordinary solvents of rubber. But even this is not exact, for long continued heat, and long continued subjection to the action of its ordinary solvents, will affect it.

It is now generally considered that there is a chemical union of rubber and sulphur in vulcanized rubber and that the union is brought about or assisted by the action of heat. This union takes place only in the presence of the vapor of sulphur, and proceeds more or less rapidly according as the temperature is higher or lower. It is also considered that it is only dissociated sulphur vapor that can thus unite with rubber.

Sulphur, like camphor and iodine, can pass entirely into vapor from the solid state at a temperature not much above the ordinary. At ordinary temperatures its vapor has a perceptible tension, which may explain what is said to be a fact that thin sheets of rubber and sulphur become vulcanized when left to themselves a long time. The union of rubber and sulphur always requires time, as does the dissociation of sulphur. Rubber is a colloid and, like all colloidal substances, it submits to change but slowly. The union takes place throughout the substance of the rubber equally, if the temperature be equal throughout; that is to say, there is a gradual chemical union of rubber and sulphur until the process is complete. We would therefore expect to find, as is the case, the amount of combined sulphur in the rubber sulphide to vary from a very minute percentage to the largest ever found, which, in the case of hard rubber, is sometimes as high as 33 per cent. But the physical qualities of what we call vulcanized rubber are not found unless at least from 2 to 2½ per cent. of sulphur has combined with the rubber.

With every increase of temperature the rate of vulcanization increases rapidly, from the ordinary temperature to the highest commonly used, which does not exceed 350° F. From 256° to 270° F. is, however, the usual range for soft rubber goods, though many articles are vulcanized at lower temperatures. It is not clear why the vapor of sulphur is dissociated at these temperatures. The molecule of ordinary sulphur consists of 8 atoms of sulphur. At a temperature of 900° F. the molecule consists of 6 atoms and at 1800° F. of 2 atoms, which is the constitution of amorphous or colloidal sulphur. If such great temperatures are required to change the sulphur molecules of eight atoms to those composed of 6 and 2 atoms, why is it that in the presence of rubber the sulphur is dissociated at so low temperatures? The answer doubtless is that at the higher temperatures the sulphur molecules are all decomposed, while at the lower temperatures used in vulcanizing there is a mixture of undecomposed and decomposed molecules. But, in vulcanization, not only is the combined sulphur changed to amorphous or colloidal sulphur, but the uncombined sulphur of the compound also. Is it not possible that the rubber itself assists the dissociation of the sulphur? We know that colloidal substances,

and rubber is a colloid, have the property under certain conditions of inducing the colloidal state in many crystalizable bodies. May not therefore the rubber colloid be capable of inducing the colloidal state in sulphur vapor?

The rate of vulcanization depends largely on the medium by which it is surrounded. If it be surrounded by air, it proceeds slower than if surrounded by any other medium in use. This is because air both receives and yields up heat very slowly. It cannot be heated to any appreciable extent except by contact and circulation, and it cannot give up its heat any more readily than it receives it. As rubber is a nonconductor of heat, we have here the worst possible combination for the transmission of the heat necessary to maintain the vulcanization at any particular temperature. When the surrounding medium is steam the rate of vulcanization at any particular temperature proceeds somewhat faster, as saturated steam yields up its heat quite freely if kept in circulation. If the medium be water under pressure, the circulation of the water maintains the desired temperature, and the loss of sulphur by evaporation is almost entirely prevented.

If the rubber being vulcanized is between heated iron plates, a quick vulcanization results, in consequence of the rapidity with which the plates yield up heat to the rubber. If the rubber be subjected to great pressure between the plates, the rate of vulcanization is still more rapid by reason of a closer contact between the iron and the rubber, which enables the latter to receive a greater supply of heat. By the latter method, a piece of rubber may be vulcanized in a few minutes, while several hours might be required to vulcanize it in air at the ordinary pressure. Thus the rate of vulcanization is not governed by the conductivity of the surrounding medium, for air, steam, and water are nonconductors, but at the rate at which the medium can yield up its heat.

There is a popular delusion that the manufacture of vulcanized rubber is an exact science—one which can be conducted in accordance with certain rules, with the certainty that, if so conducted, the product will always be vulcanized rubber goods which have the physical qualities necessary to render them durable and adapted to the various purposes for which they are intended. This delusion is not confined to the general public, but is held by many well educated persons who have had no practical experience in the art.

There is no fixed rule for the manufacturer to follow in the preparation of his goods for the vulcanizing operation, nor for the time or the temperature to be employed during that operation, and, from the nature of the case, there can be none. Each manufacturer has his own formulas and his own methods of attaining results, which must be strictly followed in minute detail to be of any practical use. The slightest deviation in any step of the process influences the final result. So well known is this to manufacturers that little effort is made to keep formulas or methods secret; in fact, "the possession of formulas, without the general ability, experience, and discretion that their proper use requires, is a damage rather than a blessing."

To accomplish the chemical union of rubber and sulphur, the time depends on the temperature, and the temperature on the time during which it is maintained. Whatever the temperature may be, within the limits usually employed, the rubber and sulphur continue to unite but the time must be adapted to the temperature. Again, a percentage of combined sulphur which in one rubber would produce sound merchantable goods, would, in another rubber result in a product having no commercial value whatever. Hence a chemical analysis of a sample cannot necessarily determine its commercial value.

All formulas for vulcanization must be adapted to the kind of rubber employed, to the compounds incorporated with it, and to its previous manipulation. If in the same operation there be submitted to the vulcanizing process articles made from various kinds of rubber all prepared and compounded alike, some will be perfectly vulcanized and commercially valuable, but the remainder may have no commercial value, because different varieties of rubber require different methods of compounding and preparation, and also different times and temperatures during vulcanization. And so if several pieces of the same kind of rubber, even pieces of the same lump of crude rubber, be handled differently in the preparatory steps, the compound in each case being identically the same, and then all be submitted together to the same vulcanizing operation, some will be well vulcanized and commercially valuable, and the others may have no commercial value. For different degrees of mastication of crude rubber produce different physical conditions, and all such differences in physical condition are perpetuated by the vulcanizing process. Again, if various rubber samples, identically the same in every respect, be vulcanized by different processes, they will be physically unlike, even if vulcanized at the same temperature and with the same percentage of combined sulphur.

As Weber says: "There is no definite relation at all between the quantitative chemical result and the physical technical effect of the vulcanizing process, inasmuch as the same degree of vulcanization in the same kind of rubber need not result in the formation of identical vulcanization products."

With such numerous chances for the production of defective goods, manufacturers are extremely averse to making any changes either in materials or processes without having first convinced themselves, by the fullest investigation and experiment, of the utility of the proposed changes. This tendency of the manufacturers insures the public against the marketing of inferior or defective vulcanized rubber articles.

GERMAN OFFICIAL INTEREST IN RUBBER.

THE German minister of commerce, Herr Möller, has been visiting some of the leading rubber goods factories in his country, with a view to becoming personally acquainted with the conditions of the industry. Such a visit was made recently to the large works of the Continental Caoutchouc- und Guttapercha-Cie., at Hanover, where the minister was escorted in automobiles from his hotel by several of the municipal officers, being welcomed at the factory by Directors Seligmann and Prinzhorn and the president of the board of control of the company. After being shown through the establishment, the minister spoke in flattering terms of the condition in which he had found it. He was especially pleased with the efforts made by the company for the welfare of their employés, and expressed much interest in the plans for houses for the workmen, for which the company had offered competitive prizes. The *Gummi-Zeitung* feels that the minister of commerce, by such visits, will be impressed with the importance of the rubber industry in Germany, and be led to feel that it deserves every encouragement by the government.

A TOWN DIVIDED OVER RUBBER HEELS.—The question of rubber heels for high school pupils is agitating Farmington. The principal has ruled that all must wear them and the school board upholds him, while many of the pupils and their parents feel that the order is infringement upon their personal privileges. Last week a score of pupils were expelled for refusing to wear the prescribed heels, and the war is now on in earnest.—*Portland (Maine) Press.*

PAPERS ON AIR BRAKE HOSE—I.

THE MANUFACTURE OF AIR BRAKE HOSE.

THE problem of how to make the best air brake hose in short lengths with capped ends has been the subject of much careful study, both by the manufacturers and the railroad experts. The first expedient of making hose in the usual 50 foot lengths, cutting into short pieces, and capping the ends, is no longer practiced by the more progressive makers of these goods. It, however, illustrates the general principles of rubber hose making, and will be described here for the information of those unfamiliar with the process.

The duck selected for air brake hose is generally 22 ounce, 40 inches wide, of long fiber cotton, and made "open" weave; *i. e.*,—not woven compactly as in the case of belting duck. This weight of duck gives the strength required to insure a hose of high bursting test, while the open texture affords the finished hose the desired flexibility or freedom to bend short without kinking, and also furnishes a better foundation for the application of the "friction" than a close texture duck. The term "friction" is used in a special sense in the rubber industry, and refers to that mode of application of the rubber stock to any fabric whereby it is made to penetrate the interstices of the weave, filling them with the gum compound, and also impregnating the surface fibers of the fabric. When applied to both sides of a fabric the goods resemble the well known adhesive tape, which is merely frictioned sheeting rolled and cut into ribbon-like width. The adhesiveness of frictioned fabric is derived from the tacky nature of raw or unvulcanized rubber and to no property of the friction process.

Vulcanization changes the tacky rubber stock into the familiar form of cured rubber. By this property surfaces that have been brought into close contact in the raw state are merged into each other without any seam or surface of union being apparent, or indeed existing. An open weave duck thus wrapped together in several bias plies is practically embedded in the rubber stock and held together, when cured, in a very effective way. To secure a still more secure binding of the plies the duck is often skim coated over the friction surface of one side. This causes a film of rubber to intervene between the plies when the fabric is wrapped upon itself as in building up a hose.

The method of applying a friction coat on a fabric consists simply of passing the material through the calender at a slower speed than that at which the thoroughly softened rubber mass is being carried around on the middle roll of the machine. This difference of speed results in a "friction" between fabric and rubber, with the effect of crowding the gum into the structure of the cloth. The application of a skim or even motion coat is accomplished by passing the fabric through the callender at the same speed as the rubber. In this case the lay of rubber on the middle roll is simply transferred to the surface of the cloth without penetrating it. If the goods have previously been frictioned the skim coat has a very secure attachment. Turning now to the preparation of the material for the tube. If it is to be machine made the stock is forced from a tubing machine and received on an endless apron conveyor which conducts it away from the machine ready for slipping onto the hose mandrel.

If the tube is to be hand made of a number of superimposed layers, the sheet is produced by coating the stock the requisite number of times on an apron passed through the calender. From this apron the sheet is stripped in the cutting room and cut into strips of appropriate width for the various sizes, then rolled in clean, narrow linings for the convenience of the hose makers. The tube is formed around the mandrel by joining the overlapping edges of the tachy raw stock upon itself. The side of the sheet which forms the inside of the tube having first been dusted with soapstone to assist, as a lubricant, in the subsequent removal of the hose from the mandrel. Generally in hand work a second tube sheet is applied over and breaking joint with the first and both are carefully rolled into union to exclude all air and consequent danger of blisters.

The friction duck having been cut diagonally into suitable width to provide the requisite number of plies, these diagonal pieces are joined end to end, with seams overlapping about three quarters of an inch, to form a bias strip fifty feet in length. The object of applying the weave of the fabric diagonally to the length of the hose is to secure flexibility and balance the strength of the warp and filling of the duck in the structure of the hose. It would be impossible to coil smoothly—*i. e.*, without kinks, a length of hose made straightway of the fabric. One edge of the bias duck strip being attached to the tube on the mandrel it is rolled down by hand for the first ply around, using concave rollers. The completion of the wrapping is further accomplished by power rolling in a 50 foot three roll machine.

A cross section of this hose machine would show the rolls disposed in an equilateral triangle separated by the hose mandrel in the center. The ply of rubber forming the cover is generally wrapped around the hose as an attachment to the outer edge of the last duck ply. A few moments combined compression and rolling is sufficient to exclude the air and effect an intimate union of the respective parts of tube, duck and cover. The next operation, if air brake hose is to be the product, is to cut the long hose into short pieces while it is revolving, as in a lathe, in the hose machine. Being then withdrawn from the mandrel, the ends receive an application of rubber cement in order to attach the raw gum washers which form the capping to exclude the moisture from the duck. Next comes the attachment of the various brands or labels for the identification of the hose. These labels are preferably made by applying thin sheets of raw colored rubber backed with thin embossed sheet metal negatives. These metal negatives are easily removed from the hose after curing and leave the colored label with its markings sharply defined. The labeled short lengths, still uncured, are mounted on a 50 foot mandrel, each section separated by a metal or hard rubber ring to prevent the sections curing together end to end. Thus arranged the goods are wrapped first with a straight narrow wet strip of sheeting and subsequently cross wrapped with a two or three inch wide wet strip of sheeting applied spirally. This process of wrapping takes place in a similar three roll machine to that used in making the original 50 foot hose.

The object of wrapping is not only to hold the parts of the hose compactly together, and in close contact with the mandrel which determines the internal diameter, but it also serves to prevent damage and adhesion of the hose when piled together in the car in which they are cured in the vulcanizing chamber. The vulcanization or "cure" is effected in an atmosphere of steam and varies in length and temperature with the nature of the goods and the compounds entering into them.

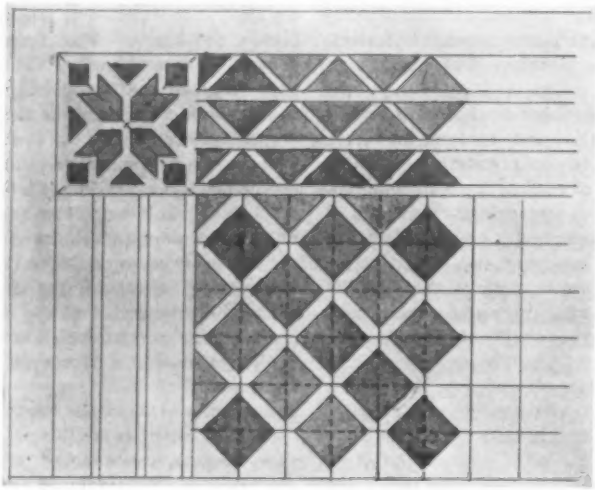
The chief objection to cutting up long hose for making air brake lengths, is that of expense. The more progressive com-

panies have adopted the practice of making the short capped end lengths at once, thus effecting a saving in cost and beside securing perfect exactness as to dimensions and enlargement of ends; better workmanship throughout producing goods more accurately capped and free from twists and internal convolutions of the duck which produce serious irregularities in the tube thickness. Hand made tube for hose seems to receive the special endorsement of many users of air brake and other hose. In this particular as in most others it is true that machine made goods are more uniformly reliable than hand made. High grade stock carefully refined and run from a tubing machine will produce a better inner tube for hose than can be made of the same stock by hand from a sheet because being seamless it is free from the liability of careless work in seaming up in the presence of soapstone dust which must be used, and is always liable to enter the seam and render the joint defective.

RUBBER FACTORY METHODS AND APPLIANCES.

MAKING PERFORATED RUBBER MATS.

PERFORATED or punched rubber mats are generally used in vestibules, elevators, and carriages, and are of sufficient importance to warrant more care and thought in manufacture than they generally receive. It is a frequent mistake to make these heavy low grade goods in sections of too great area, and they consequently get broken up long before they should, and the purchaser puts the blame just where it belongs, on the manufacturer, who should make his goods of whatever kind with some idea of adaptability to use. Another important point to be considered is the size of the perforations employed. They should not be large enough to permit the fingers to pass easily through them. For in that case the mat will surely be lifted about in this way and soon be broken, especially if the angles of the perforations are sharp instead of being rounded, which will secure greater resistance to tearing.



Mat stock generally is run in rolls, built up in plies in the calender on a sheeting back. The thickness usually is ¼, ⅜, or ½ inch. In making a mat the stock, of suitable size to allow for shrinkage in curing and trimming, is cut approximately by the pattern of the area to be covered. If it is to contain any inlaid letters or monograms these are put in at this stage by removing one ply of the mat stock and cementing in the colored letter stock. The stock is next semicured in a hydraulic press, on a smooth or corrugated plate according to the surface desired on the mat.

Before laying out the guide lines for the perforations the cloth back must be removed. This is accomplished by *thoroughly* wetting the sheeting with naphtha, and while still wet carefully drawing it back from the edges until it is entirely free from the stock. Great care is necessary at this point to prevent ignition of the naphtha gas by an electric spark due to friction. There is very little danger if plenty of naphtha is used, because the cloth will then separate very easily. The danger comes with the increased friction due to not wetting the cloth well with naphtha, and to undue haste in withdrawing the sheeting.

Guide lines for the pattern or design are marked on the stock and properly spaced to bring the perforations even all around. This can easily be done by carefully spacing the pattern both ways with the dividers and allowing the small amount of odd space not needed in the center or border to go into the plain margin.

The various cutting dies are provided with handles and are driven through the stock with a mallet. A most convenient form of mallet is similar to that used by a stone cutter. It is made of firm fiber and rubber stock, weighing about 3 pounds, and fitted with a stout handle of hickory. The pattern is punched out with reference to the guide lines (as indicated in the accompanying figure) and carried across all the lettering by lightly applying the dies in such a way as not to mark the letters, but only to indicate faintly the parts of the design adjacent to the lettering but not completely overlaid by them. In this way the irregular perforations are indicated and are subsequently cut out with the aid of chisels, of which a considerable variety of sizes is needed. After perforation the mat receives a final cure in open steam heat and the surface is finished by a simple application of harness soap or black lead in water and rubbed to a polish with a brush. In this way a very attractive finish is obtained and all traces of the guide lines used in the laying out of the mat are removed. Colored letters are wiped off with a little naphtha on a rag and the mat is completed by trimming to size.

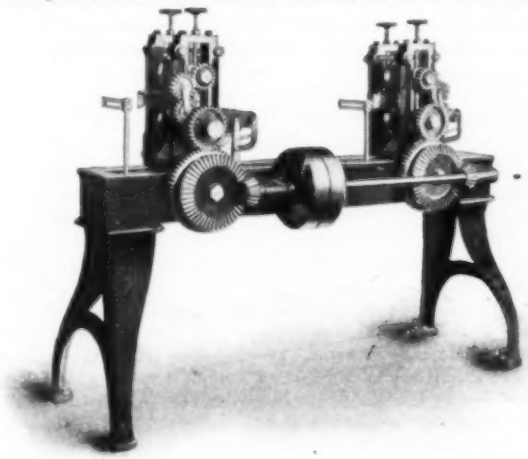
This method of mat making is much more satisfactory than the old plan of punching the pattern through a stencil made of thin packing lightly cemented over the stock, or the other crude way of dusting the pattern onto the stock with chalk through a stencil. These methods are still in use, however, and certainly seem awkward when the design requires to be stenciled *on the back* of the stock, in the case of a corrugated mat, and the perforations punched out from the back.

MULTIPLE PLY INSULATION FOR WIRES.

A MOST perfect method for rubber covering electric wires has of recent years been discovered or developed, which practically supersedes the older method of drawing a single wire through the head of a tubing machine and forcing the rubber stock out around it as it passed through the die regulating the amount of stock applied. The newer method is designed to cover several wires at one and the same time, with one or more plies, but generally two, each ply united around the wire by a "butt" seam and made from calendered sheet stock. By this plan of insulation some very important advantages are secured

over the older tubing machine method. The two principal advantages are much greater speed of covering and consequently increased output. Also more perfect insulation, due to the possibility of applying the stock in two or more plies, thus remedying any defects in one ply by the stock in the next ply. By using calendered sheets of different colors the plies of the insulation are distinctly shown and the fact of double insulation in this way easily verified.

Several machines for performing this class of work have been devised. In general principle they are much alike. The material for insulation, in the form of thin sheet stock, is slit or cut into bands or strips of appropriate widths varying with the size and number of wires to be covered. The rubber strip is then placed on reels arranged to feed into the covering device folded around or laying both above and below the wires. The covering mechanism consists of sharp edged grooved rollers known as "caliper compression" type, because they both span the wire and compress the stock upon it. The groove takes in both wire and surrounding stock and by the revolving shear-like action of the rollers on each side of the wire the rubber sheet is compressed snugly to the wire and a butt joint or seam is neatly formed in the insulation close to the wire as the ex-



TWO HEAD RUBBER COVERING MACHINE.

cess of stock is sheared off. The knitting of the two parts of the sheet as it is sheared by the grooved edges of the rollers is dependent on the adhesive property of raw or unvulcanized rubber compound. By arranging the machine with the appropriate grooved covering rollers in two housings on the same frame, several wires at once may be successfully covered as they pass through and thus double insulation be effected with great rapidity.

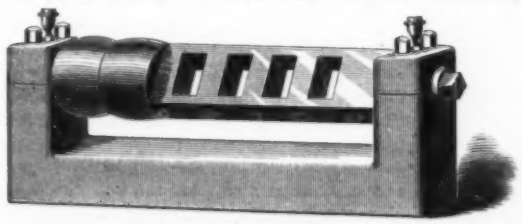
Among recent developments in this class of rubber machinery may be mentioned that perfected by the New England Butt Co. (Providence, Rhode Island). This is a two head machine adapted for covering three wires with either one or two seam rubber covering. It is shown in an illustration on this page and consists of a rigid frame provided with heads driven by bevel gearing from the main shaft which runs along the side of the frame. The front head—that is, the head which covers the outside layer of rubber—is positively driven, while the rear heads are provided with friction devices which permit slightly different speeds of the wire on account of the differences in diameter. Each head is provided with compensating gearing, which allows the use of caliper compression rollers of different diameters. By this arrangement the rollers can be turned down when dull and used until considerably reduced in diameter. The heads are so arranged that the inside housing can be taken away in order to change the rollers, without removing the shafts, gears and bearings. Each head is provided at the back with a wire guide and adjustable rubber guide, and at the front with a pair of rollers to remove the rubber scrap automatically. When desired the machine is provided with a taping head, placed at the extreme end of the frame.

The machine shown in the illustration is intended for covering single wires or strands from No. 20 Browne & Sharpe gage to strands with an outside diameter over the covering of about one inch. This machine will also cover three wires at once, in sizes up to No. 12 Browne & Sharpe gage. Its capacity on No. 14 wire using the three groove cutters is 70,000 feet per day of ten hours. A larger machine is built for large size wires and cables, running from 1 inch to 2½ inches outside diameter of the covering.

MOLDING SOLID CARRIAGE TIRES.

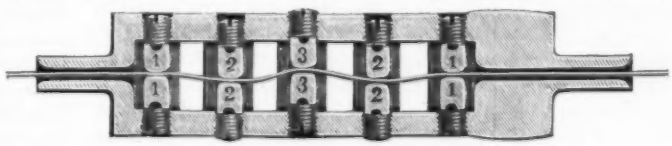
IN the manufacture of solid carriage tires the tubing machine is indispensable. The stock must be mixed and handled at a temperature that will insure its not being burnt in the process. The various sizes are run as nearly as possible exact to a template of the finished goods. In some factories it is the practice to cold press the stock in wooden molds made in duplicate of the metal curing mold. In this way the tire is shaped and all excess of stock saved in the unvulcanized condition. The molding and curing takes place generally in lengths of 14 feet in an hydraulic press. The old method of clamping the stock in a mold and curing in open steam, being too slow and expensive, is now in disuse. A few factories are making solid tires in continuous length of any desired measure. This is merely a matter of making shift after shift and splicing, on account of the wires, which are generally about 16 feet.

The great difficulty formerly experienced in keeping the holes in their proper locations in the base of the tire, has been overcome by simply running the stock to exactly fit the molds and, in that way, the overflow of surplus stock is reduced to a minimum. In case there is much excess of stock in the mold; its escape sidewise deflects the wires badly out of position and renders the tire worthless. With the stock carefully run to fit the molds it is only necessary to permit the straight wires to



FIVE DIE ROTARY WIRE STRAIGHTENER WITH LOOSE PULLEY.

lie in place during the curing with their ends protruding free. The precaution must be observed to keep the wires constantly straight. This can only be done by passing them regularly through some form of power straightener, after each removal from the tire. The usual form of straightener is the rotary



SECTIONAL VIEW OF FIVE DIE ROTARY WIRE STRAIGHTENER.

type, as made by The F. B. Shuster Co. (New Haven, Conn.) and shown in the illustrations. As the wire is drawn through the rapidly revolving dies its kinks are subjected to a smoothing out or straightening, produced by the alternate centric and excentric pressure of the dies. Oil as a lubricant is applied, a few drops at a time, from a clean rag through which the wire is drawn before entering the machine. By this means a fine finish is given to the wire and the wear of the dies is lessened. The usual speed of the machine in straightening carriage tire wire is about 3000 revolutions per minute.

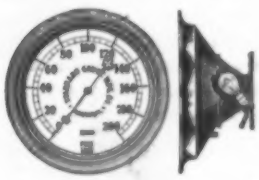
IMPROVED OPERATION OF DRY HEAT VULCANIZERS.

THE difficulty of maintaining a uniform distribution of heat in a dry heat vulcanizing chamber has been overcome by an invention by Augustus O. Bourn, of Providence, Rhode Island. [United States patent No. 735,059, August 4, 1903.] The result is attained by maintaining an enforced slow circulation of the vulcanizing element (by which is generally meant air) into and out of the vulcanizing chamber.

The apparatus consists simply of an exhaust fan drawing the hot air from immediately over the steam coil in the bottom of the vulcanizing chamber and returning it to the upper part of the chamber, thus agitating the air throughout the vulcanizer and thoroughly distributing the heat. It is found practicable to heat the air supply and force it from a single blowing or pumping apparatus into and through a number of vulcanizing chambers without the necessity of using a heating coil in each chamber, as heretofore. By dispensing with the use of heating coils within the chambers there is an increase in the available space for the reception of goods, owing to the absence of the coil; also, an increase of available space owing to the fact that when a heating coil is employed the excessive radiation of heat prevents the arranging of articles in close proximity to the coil.

ILLUMINATED DIAL GAGE.

THE illustration herewith refers to an illuminated face pressure gage, which will prove of great convenience in all power plants, where boilers are employed, where such an instrument may be located in a dark place or is required for use at night. A light placed in the opening at the back of the gage (generally an incandescent bulb) gives practically the same effect as an illuminated tower clock at night. When this device is used there is no chance of an error in locating the position of the indicating pointer. The illuminated dial gage is understood to be meeting with much favor among leading engineers, architects, and boiler manufacturers. [Standard Gauge Manufacturing Co., Syracuse, New York.]



DAMAGE SUIT AGAINST A RUBBER COMPANY.

WHEN the Diamond Rubber Co., in a spurt of generosity and advertising, put in a "gooseneck" with which to fill automobile tires at its place of business, the manager had no idea that a damage suit would result. But it did. Charles B. Harryman, a salesman, caught his foot in the "gooseneck," fell and broke his leg in two places. He asks $9500 from the city of Denver, the Diamond Rubber Co., and Moritz Barth, owner of the building, and Judge Johnson has decided that all three must stand trial, agreeing with Attorney F. W. Parks, for Harryman, that a jury should have an opportunity to hear the facts as to the responsibility of all parties concerned.—*Denver (Colorado) Post, November 3.*

LITERATURE OF INDIA-RUBBER.

L'*HEVEA* ASIATIQUE. SUITE AUX "ÉTUDES POUR UNE PLANTATION d'Arbes a Caoutchouc. Par Octave J. A. Collet. Bruxelles: Librairie Falk Fils, 1904. [Paper. 8vo. Pp. 84.]

THIS is the latest of several publications of the Société d'Étude Colonials de Belgique from the pen of a competent observer who has devoted much time of late to the products of the Malay states, and the second brochure in the series devoted to rubber culture. M. Collet has visited personally the more important plantations of *Hevea* rubber in the Malay states and Ceylon, noting the methods employed and the results obtained, and his work is of value as a trustworthy record of what has been done, and of no little interest in indicating the opinion of the author that the so called "Pará rubber" may be expected to yield better results under cultivation in Asia than in its natural *habitat* in the Amazon region. Eighteen excellent views from photographs represent the *Hevea* trees in various stages of growth under cultivation.

THERE is in press at Manila a report on the work done on India-rubber and Gutta-percha in the government laboratory there, which will form Bulletin No. 7 of that institution. It may be expected to contain the details of a process worked out in the laboratory for the extraction of a chemically pure Gutta-percha, referred to in THE INDIA RUBBER WORLD of August 1, 1903 (page 374).

IN CURRENT PERIODICALS.

LE Caoutchoutier de Céara. [Results of culture in different colonies.]=*Journal d'Agriculture Tropicale*, Paris. III-25 (July 31, 1903). Pp. 205-206.

Observações Sobre as Arvores de Borracha do Região Amazonica (Observations on the rubber trees of the Amazon region). By Dr. J. Huber, chief of the botanical section of the Pará Museum.=*Boletim do Museu Paraense*, Pará III-3, 4 (December, 1902). Pp. 345-369.

Ule's Expedition nach den Kautschuk-Gebieten des Amazonenstromes—IV. By Ernst Ule.=*Notisblatt* des königlichen botanischen Gartens und Museums zu Berlin. IV-32 (August 30, 1903). Pp. 92-98.

Rubber Plantations in Mexico and Central America. [A carelessly edited résumé of information in late government reports.]=*The National Geographic Magazine*, Washington. XIV—11 (November, 1903.) Pp. 408-414.

Le Caoutchouc en Rhodésie. By E. De Wildeman. [Based upon the reports of the British South Africa Co. which were reviewed in THE INDIA RUBBER WORLD, September 1, 1903—pages 425-426]. *Revue des Cultures Coloniales*, Paris. XIII-132 (September 5, 1903). Pp. 134-136.

Les Caoutchoutiers de la Region Chari-Tchad [French Africa]. By Émil De Wildman.=*Industrie et Commerce du Caoutchouc*, Brussels. I-9 (September, 1903.) Pp. 192-193.

Le Caoutchouc des Herbes. By Émil De Wildeman.=*Industrie et Commerce du Caoutchouc et la Gutta-Percha*, Brussels. I-2 (February, 1903). Pp. 25-28.

Rubber Tapping Experiments in the Botanic Gardens [at Singapore]. =*Agricultural Bulletin of the Straits*, Singapore. II-8 (August, 1903). Pp. 264-266.

Une Ferme à Caoutchouc à Ceylan. [Based upon a communication by F. J. Holloway to THE INDIA RUBBER WORLD, March 1, 1903—page 192]=*Journal d'Agriculture Tropicale*, Paris. III-27 (September 30, 1903). Pp. 273 275.

Rubbers and Fibers. By J. Cameron, F. L S. [Paper read before the United Planters' Association at Bangalore, on planting results]=*The Indian Forester*, Allahabad. XXIX—10 (October, 1903). Pp. 475.

Note sur les Guttas. By Dr. Spire, of the botanical mission to Indo-China. [Relating to plantations in Java and the extraction of Gutta from leaves.]=*Bulletin Économique*, Hanoi. VI-17 (May, 1903) Pp. 315-324.==Reprinted in *Revue des Cultures Coloniales*, Paris. XIII-130, 131 (August 5, 20, 1903). Pp. 78-81; 106-109.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

EVEN supposing the subject were sufficiently interesting to most of the readers of these notes, it would be a most difficult task to condense into a few paragraphs the volumes of speech being poured forth at the present time on Mr. Chamberlain's proposals. Among prominent representatives of our rubber factories Mr. Chamberlain can number supporters and detractors, but I am not in a position to say which party is numerically the greater. I may mention, however, that there are those who, while strongly denouncing the scheme for bolstering up trade with our colonies by preferential tariffs, and who loudly proclaim themselves Free Traders, are at the same time not at all adverse to the imposition of a duty upon manufactured rubber goods entering this country. The free traders' great point is that under this system all the requirements of a manufacture can be obtained in the cheapest market, thus enabling them to make goods of a superior quality for the same price of production prevailing in a protected country. This is what enables Great Britain, they say, to retain her hold upon foreign markets in spite of protective tariffs in the latter. One of the results of these tariffs, where they are sufficiently high, has been the establishment in the protected countries of works financed by foreign capital. The textile factories in Italy, Spain, and Portugal are evidence of this, and where the invaders have superior technical knowledge it is generally found that home firms get the worst of it in competition.

THE FISCAL QUESTION.

THE present year, with its records in the way of rainfall, comes rather opportunely to one class of manufacturers, at all events, whatever may be its dire effects on the agricultural interest. Such continuous wet weather as we have experienced could hardly fail to bring about an improvement in the branch which has witnessed such a long period of depression, and there are indications on all sides that the deposed macintosh is again assuming prominence. And perhaps it is not altogether to be deplored that the business seems to be practically restricted to the better quality goods, the demand on the large scale for the cheap article of dubious rain-repelling properties not having at present, at all events, manifested itself. Of course it must not be assumed that the high class rainproof cloth has experienced any decided setback in popularity, because especially with regard to the product of Messrs. Mandleberg's works there is plenty of evidence to, the contrary. The position is rather that the limitations of the rainproof article are now pretty well recognized, the natural sequence being a recognition that the wardrobe of those who have to be out and about in all sorts of weather is incomplete without both a rainproof and a macintosh. So much for generalities; with regard to the technical aspect there is nothing of particular novelty to record. From a general business point of view manufacturers do not look upon this branch of the rubber trade as likely to prove a remunerative one, and this because of the continued cutting of prices. There are too many in it, and the natural eagerness to get the trade has led to the adoption in some cases of tactics which must eventually prove detrimental to its development and stability. I am not referring furtively to the use of substitute instead of rubber; this has long been with us. I was thinking rather of the reduction of dimensions. Where one firm sells, let us say a cloak of sufficiently ample dimensions at a certain price, a competitor steps in and offers apparently the same article at a lower price. I say "apparently the same," because measurement will show that the area of superficies is considerably reduced, accounting for the lower selling price. It is said and no doubt with truth, that the reduction in dimensions is a cause of injury to the trade because the article fails to give that satisfaction to the wearer which one of more ample dimensions would do. The point seems one that might with advantage engage the attention of the Rubber Manufacturers' Association, though it seems very doubtful whether remedial measures could be taken.

THE WATERPROOF TRADE.

THE old established fire engine manufacturing business carried on at the Metropolitan Works, Salford, Manchester, by William Rose & Co., has recently undergone an important alteration in its name and management. The business has been taken over by a new company with the title of the William Rose Hose Co., Limited, the capital, privately subscribed, being £50,000. The first directors are William Rose, James E. Baxter, and David Moseley. Such a strong directorate is a good augury for the consolidation and expansion of the business in fire hose so long carried on by the first named director. Whether the energies of the new board will be devoted to furthering effective competition with the two great fire engine firms of Merryweather and Shand is a matter for speculation and one that does not call for comment. The Metropolitan works are fitted with the best machinery for weaving flax hose and of course the new directors are in a position to see to the manufacture of the rubber lined hose which is the quality exclusively used by the Metropolitan (London) Fire Brigade. With regard to this matter of rubber lined hose, a considerable difference of opinion is found among fire brigade authorities, the example set by London being by no means generally followed by provincial municipalities.

A NEW FIRE HOSE COMPANY.

A STRANGER paying a first visit to the works of this old-established firm at Tottenham might naturally express surprise at the small acreage they cover. The explanation, of course, is that the new works at Barking being now in full operation, a considerable portion of the old works has been demolished, only certain branches of the business being now carried on at the old address. Messrs. Warnes, although having nothing to grumble at as regards trade generally, are in agreement with the prevailing opinion that the present high price of the raw material is acting adversely on the output. As I write, however, the prospect of a considerable reduction is imminent, and there can be little doubt of a spurt in business resulting. Messrs. Warnes' specialty continues in the elastic thread of which they turn out, I think I may safely say, considerably more than any other house in the world.

WILLIAM WARNE & CO., LIMITED.

NEWSPAPER warfare is rarely interesting to others than those primarily concerned, and I do not propose to say more than a word or two by way of rejoinder to Dr. Weber's remarks on this subject in the October issue of this Journal. In his usual jealous regard for the language of his adopted country, he comments adversely on my employment of the term "tirade." Here, I am afraid, we must remain at variance; with regard, however, to his general plaint it appears that I was in error as to the trend

"NOMENCLATURE OF RUBBER."

of his appeal—the invitation to adopt the term "polyprene" being extended to scientists only and not to the general public. Apart from this misinterpretation of his words, which I regret, I really do not see, in looking over my remarks again, that the occasion warranted a reply in such a heated strain. It can hardly have escaped the memory of my readers that I have more than once referred with regret to the prevalent use of such terms as "gummi" and "goma," and I do not see how any reference I made could be construed into anything antagonistic to the spirit of Dr. Weber's remarks. It is possible to recognize the existence of defects without transforming one's self into an agitator for their removal. As a mild rejoinder to the thoughtful exhortation to temper my remarks with wisdom, might I remind my critic of the expression, "what is desirable is not always expedient."

INDIA-RUBBER MANUFACTURERS' ASSOCIATION.

ON the occasion of the dinner held among the members at the Queen's Hotel, Manchester, on October 22, Mr. Lockhart, of W. & A. Bates & Co., in the chair, a gratifying sign of the increased unanimity being shown in the trade was the presence of a representative of the Dunlop company. This firm, it will be recalled, was the only one of any magnitude in the trade which withheld its signature to the circular issued last May announcing a rise in prices owing to the increased price of raw materials.

TRADE NOTES.

I UNDERSTAND that the recent purchase of the Anchor Cable Co. works at Leigh, Lancashire, by Callender's Cable Co. was due to a resolve on the part of the latter company to compete in the vulcanized rubber cable business. Hitherto I need hardly say this firm's cables have been insulated entirely with a special vulcanized bitumen.——At the half yearly sale of condemned Postoffice stores on November 11, the amount of Gutta-percha strippings offered was 45 tons and that of rubber covered cable 4½ tons. The respective prices for samples were 4 shillings and 6 pence. The quantity of Gutta-percha offered corresponds very closely to the average of recent years, the increased use of dry core cable not having, as yet, at any rate reduced the amount of Gutta-percha annually offered for sale by St. Martins.——The fact that the War department have altered their specifications for rubber in accordance with the representations of the India-Rubber Manufacturers' Association is one that deserves to be recorded in these columns as indicating a new departure. The heat tests are now to be 2 hours dry heat at 280° and 4 hours moist heat at 320° F., being an increase of an hour in each case. Moreover, the "best quality" rubber is to be stipulated for instead of the "best Pará" rubber as heretofore.——Brown substitute made from fish oil is now being made in England, though I have no information as to the extent of its sales. There is plenty of a cheap class of fish oil to be had in the market but its objectionable smell (as evidenced where soft soap is used) has militated in a number of cases against its use.——The Pluviusin Co., of Mouton Green, near Manchester, are finding an increasing sale for their product, which, however, does not seem to have affected certain branches of the rubber trade to anything like the extent prognosticated. It is rather the leather industry that feels the competition. A company making a somewhat similar product called "Toreid" has recently been established at Vitry-sur-Seine, on the outskirts of Paris, with a capital of 1,000,000 francs.

RUBBER IN PERU.

I HAVE been the recipient from an official source of several pamphlets dealing with Peru and its potential wealth, not the least interesting of which to me is entitled "La Industria de las Gomas en el Peru." According to this booklet the various climatic conditions prevailing render the country the most healthy in America, ideas to the contrary being the outcome of ignorance. It is in the mountainous zone that the important rubber gathering industry flourishes, under the rules and regulations that *concessionaires* have to comply with and which seem to be equitable enough. Naturally enough it is somewhat of a sore point with the authorities that the statistics relative to the export of fine rubber and caucho do not nearly indicate the annual production because of the large amount that finds its way to Manáos by the Amazon and its tributaries, though this plaint is shared with other South American states. It is estimated that the figures of 619,904 kilos of Caucho and 382,503 kilos of fine rubber which paid duty to the government in 1899 represent only a third of the amount which left the country. The plan of working the rubber forests as part of an organized branch of economic botany is advocated and Peru would seem to offer a good field for those proposing to embark in the cultivated rubber business, though I should say that I am not aware how far the prevailing transport conditions can be considered advantageous. The Peruvian trees, it is said, attain in general the height of 20 to 25 meters, the color of the flowing sap being indicative of the quality of the rubber; thus if violet it is first class, if red or white it ranks as second class. It may be that a country which is desirous of attracting immigrants may be inclined to paint its advantages in somewhat too glaring colors, but certainly from what I read of Peru and its varied botanical and mineral wealth it seems a country deserving of the colonists' attention.

RUBBER EXPORTS FROM PERU.

THE details below, from the *Loreto Commercial*, relate to the shipments of rubber from the Peruvian department of Loreto, having the Amazon river for its outlet. The rubber shipments for the department are classified in the tables as from Iquitos, Caballo-Cocha, and the river Javary. Such rubber as is collected in southern Peru finds an outlet, for the most part, via the Pacific coast, and is not embraced in the present showing. The table relates to the exports for two years:

GRADES.	Iquitos.	Caballo-Cocha.	Javary.	Total.
	1901.			
Fine rubber.....*kilos.*	389,601	88,518	317,098	795,217
Entrefine.....	42,885	1,397	1,792	46,074
Coarse.....	224,436	44,639	32,186	301,261
Caucho slab.....	59,707	9,387	2,246	71,340
Caucho ball.....	509,655	7,667	3,443	520,765
Weak rubber.....	4,019	—	—	4 019
Total.....	1,230,303	151,608	356,765	1,738,676
	1902.			
Fine rubber.....*kilos.*	412,295	87,839	280,189	780,323
Entrefine.....	25,752	3,752	420	29 924
Coarse.....	155,989	38,227	32,981	227,197
Caucho slab.....	73,041	6,074	12,557	91,672
Caucho ball.....	623,976	6,287	10,071	640,334
Weak rubber.....	8,636	—	—	8,636
Total.....	1,299,689	142,179	336,218	1,778,086

SUMMARY OF INCREASE (IN KILOGRAMS).

Increase in Caucho output in 1902.....		139,901
Increase in "weak rubber".....	4,617	144,518
Decrease in Rubber (Pará sorts).....		105,108
Net increase in exports in 1902.....		39,410

ONE of the old-school druggists' sundries men refers to the time when syringe bulbs brought from 24 to 27 cents each and rubber tubing was $1.75 a pound. It makes one sigh for the old times and the old prices.

CRUDE RUBBER INTERESTS.

THE EXHAUSTION OF "CAUCHO".

A REPORT by United States Consul Kenneday, at Pará, dated September 9, refers to "the rapid destruction of the rubber forests in the very region where the best rubber is found," as "really worrying the rubber men," and expected this year to "be beyond all precedent—enormous and irreparable." He refers to advices from an exploring expedition headed by Captain William Gerdeau, an expert of fourteen years' experience, who has spent more than the year past in an investigation of the upper Amazon territory, where he found "the rubber gatherers cutting down the forests with amazing rapidity and improvidence, far beyond what his previous information had led him to expect." Another report quoted by the consul is one by Mr. Robert B. Ewart, who lately crossed the continent from Lima, Peru, coming down the Ucayali river to Iquitos, and thence down the Amazon to Pará. In the great territory drained by the Ucayali he refers to the Caucho hunters as "the bane of the country," who "have done incalculable damage in the past few years" in cutting down the rubber trees. "Every year enormous forests of rubber are destroyed, and each year the supply grows less and less and the rubber gatherers themselves go back further from the rivers."

Consul Kenneday in transmitting this information evidently confounds the Caucho tree with the *Hevea* species, which yield the Pará rubber of commerce. It is no news that the Caucho yield is obtained wholly by the destruction of the trees, whereas this practice has never extended to the extraction of rubber from the *Hevea*. On the other hand, the tendency has been to give better care to the preservation of the Pará rubber trees, which are visited regularly, year after year, in carefully marked *estradas*, permanent groups of trees well cared for being regard ed as the most important asset of the country.

Thirteen years ago Major J. Orton Kerbey, then United States consul at Pará, reported:

> The Peruvian rubber or Caucho forests are already fast disappearing and the nearest are now far away. The practice of felling the tree to collect the rubber has destroyed all the trees near the rivers, except far up on the Ucayali and Javary rivers. It is affirmed that extensive tracts of forest have not yet been touched, but that they are difficult of access on account of the distance from the rivers and the lack of roads. It is perfectly safe to assert that in the near future all the available Caucho forests of Peru will have disappeared unless other methods are speedily adopted.

This statement has been confirmed by every writer on the conditions of the Caucho industry down to the present time. In October, 1901, THE INDIA RUBBER WORLD contained an extensive report on the exhaustion of the rubber resources of Colombia, the grade of rubber produced there being the same as the Caucho from the upper Amazon, and the same wasteful practices have followed the migration of the Caucho hunters to the headwaters of the Amazon. And yet such was the wealth of the latter region that year after year the output of gum has increased rather than fallen off. But this cannot continue always. In *The Geographical Journal* (London) for October, C. Satchell presents a map of the river Yavary (Javary), which forms the boundary between Brazil and Peru, and in writing of the adjacent country he says: "Rubber gathering is practically the sole industry, and this is decaying." The same story may be told of every river along which Caucho is gathered extensively. While the sources of Pará rubber proper are not being destroyed to the extent which might be inferred from Mr. Consul Kenneday's report, an important grade of rubber is disappearing, leaving the *Hevea* trees to be the sole natural source of rubber.

A CONSUL TO REPORT ON RUBBER.

ON November 14 Colonel Louis N. Aymé, the new United States consul for Pará, sailed from New York, on the *Cearense*, for his official post. It is understood that, acting under instructions from Washington, Consul Aymé will, as soon as practicable after becoming established at Pará, go up the Amazon, with a view to studying and reporting upon business conditions in general, and particularly such details as may be of interest in connection with the extension of American trade. As the trade of his district (which embraces Manáos) is so largely based upon rubber, whatever the consul may write regarding his investigations will be practically a report on rubber.

A RUBBER SCHOOL IN FRENCH AFRICA.

AN industrial school established in Bobo-Dioulasso, the French Soudan, in 1902, with funds supplied by the colony, has for its object the instruction of natives in the best methods of extracting and coagulating rubber, with a view to the preservation of the trees. In a report of June 28, 1903, mentioned in *La Quinzaine*, the government delegate in the colony states that the school has been attended since the beginning by more than 150 pupils, who have been arranged in groups and taken into the best rubber districts in various parts of the colony. The official report is to the effect that good results have been obtained, and that the merchants are pleased with the effect upon the native in the avoidance of the destruction of the rubber yielding plants, and also in the preparation of rubber of a better quality than in the past. As early as February, 1902, the lieutenant governor of French Guinea issued a decree forbidding the exportation of adulterated rubber, which has had such good results in improving the quality of rubber sent from that region that similar regulations are to be enforced throughout French Africa.

THE SALE OF CONGO RUBBER.

THE lines which follow appeared in some of the American newspapers early in the past month:

> AMSTERDAM, Nov. 5.—Among the reforms which will shortly be introduced in regard to trading with the Congo Free State will be one in regard to a change in the custom of selling ivory and rubber. Under the present arrangement agents collect the stock at Boma, where it is sold. Thence it is forwarded to Antwerp. In the future it will be collected at some place on the lower Congo where it will be sold at public auction. This change will be a serious blow at the commerce of Antwerp, but it is thought that it will benefit the Congo Free State.

When this publication was brought to the attention of Mr Albert T. Morse, of A. T. Morse & Co. (New York), crude rubber merchants and important handlers of Congo rubbers, that gentleman was very positive in expressing his doubts that any such change was contemplated.

"I can see no good reason," said Mr. Morse, "why any such change should be made, and every reason why it should not be made. At Antwerp the rubber buyers of Europe can collect, and rubber merchants of other countries can receive samples from there in ten days. There would be no dealers go to Boma and it would take forty days to get samples delivered. I can see no advantage in such a change to the Congo Free State, for it would bring very few people there and I am confident the

producers of rubber would get less money for their product. One of the advantages claimed is the saving of freight on account of the loss of weight after the rubber is cut. I don't believe this shrinkage would amount to 2 per cent., which is too little to be considered. The present method of buying rubber at Antwerp is abominable, but I believe it would be worse at Boma. When I say abominable, I mean to the buyer. Under the present system every buyer, after getting samples, bids as much as he possibly can. He may not bid high enough to get what he wants, so the following month he goes higher, and so it is that the prices are continually being forced up. If it were an auction where a man had more bids than one he could start low and go up; under the present system every buyer has to start at his top limit."

In the recent Note of the Congo Free State government, in reply to the British government's Note to the Powers in relation to alleged abuses permitted on the Congo, this statement appears, and it may have been the basis of the report that the sale of rubber is to be transferred from Antwerp to Boma:

The policy of the state has not, as has been stated, killed trade. On the contrary it has created it, and it ensures the perpetuation of the materials of trade. It is thanks to it that on the commercial market of Antwerp and very soon in the Congo itself—*the possibility of establishing there sale depots is being examined*—there can be offered annually to everybody without distinction, without favor or monopoly, 5000 tons of rubber collected in the Congo, while formerly, for instance in 1887, the export of rubber hardly reached 30 tons.

A MUCH TRAVELLED CANARD.

THE Belgian journal *Industrie et Commerce du Caoutchouc* quotes the journal *L'Amérique Latine* a report credited to the *Venezuelan Herald*, regarding a newly discovered rubber producing plant in the United States, of which great things are expected, especially due to "des experiences faites clandestinement par la Goodrich Rubber Company." This report so far has gone only half way around the world; by the time our contemporaries in Hanoi and Allahabad have discussed the "chico" plant, no doubt its merit will have become exaggerated to the extent of making it superior to Pará rubber. And the "Goodrich Rubber Company" will be heard of having developed the greatest discovery of the age in respect to rubber. Evidently the company referred to have conducted their experiments so "clandestinely" that their right hand does not know what their left is doing. At any rate, in September last we published a report on the subject, stating: "Mr. B. G. Work, vice president of that company, informs THE INDIA RUBBER WORLD that he never heard of the matter until he saw it in the newspapers. In other words, 'the story was made out of whole cloth.' One of our correspondents intimates that the writer who first gave publicity to the story was the victim of a jocular young rubber man in Denver."——Nevertheless there is something doing in Colorado which indicates a belief on the part of local capitalists in the future of that State as a producer of rubber, as our news columns show.

RUBBER PLANTING ENTERPRISES.

IN a paper on "Rubbers and Fibers" read by J. Cameron, F.L.S., before the United Planters' Association of the state of Mysore (southern India) at their recent conference at Bangalore, referred to the experiments in planting in that region three American species of rubber—the rubbers of Pará and Ceará, and *Castilloa elastica*. He was disposed to give the preference to the Ceará rubber (*Manihot Glaziovii*), which, in the last decade, had thriven amazingly, and had certainly come to stay in the country. It will flourish in dry situations, from the sea level up to at least 4000 feet. Trees ranging in age from 8 to 14 years had been found to contain a liberal amount of *latex*, which flows freely. One tree, tapped twice a week for three months, had yielded a little over 3 pounds of rubber. Mr. Cameron thinks the *Hevea Braziliensis* not likely to be of much practical use in the drier parts of India, though succeeding in Ceylon and the Malay peninsula. At Bangalore the tree languishes and dies during the long dry season, and irrigation does not give relief. The *Castilloa elastica* he regards as intermediate between the other two species and likely to do well in the moister regions of the coffee zone.

THE SEREMBAN ESTATE RUBBER CO., LIMITED.

THIS company has been formed to take over the Seremban estate, in Negri Sembilan, one of the Federated Malay States. The authorized capital is 1,000,000 rupees [=$324,433.33], divided into 10,000 shares. The estate, to be taken over as from January 1, 1904, comprises 3492 acres, held under a 999 year lease from the government. There are 412 acres originally planted to Liberian coffee, which in 1898 were planted throughout with Pará rubber 20 × 20 feet, and three years ago an intermediate planting of rubber was made. The coffee is estimated to yield 500 piculs [=66,600 pounds] in 1904, but very little thereafter. There are about 40,000 rubber trees 5½ years old, 10,000 trees 3½ years old, and 30,000 trees 2½ years old, and about 20,000 on a new clearing. The selling price of the estate is 450,000 rupees [=$145,995], including 360,600 rupees [=$116,990 66], for the coffee and rubber land, which is estimated at 700 rupees [=$227] per acre. The vendors accept in half payment 2250 shares, the remainder of the purchase price to be paid in cash. The first issue of shares (in addition to 2250 mentioned) is 4750 shares. It is proposed to make new clearings as rapidly as possible, say 200 acres in 1904, and for this purpose arrangements have been made to borrow money as needed, up to £5000 [=$24,332.50], at 5 per cent. While no attempt is made to estimate future profits, the company's prospectus sets forth reasons for the belief that they will afford a good return for the investment. The owners of the property are E. S. Grigson, W. Saunders, W. H. Figg, L. Davidson, D. R. Marshall, V. R. Wickwar, and the heirs of D. Cameron and E. D. Harrison. The first directors of the company are Messrs. Grigson, Saunders, and Figg.

GOLCONDA ESTATE RUBBER CO., LIMITED.

THIS company (registered at Colombo, October 16) has been formed to purchase the Golconda estate, in the district of Klang, Selangor (Federated Malay States), comprising 970 acres, for 90,000 rupees [=$29,199], as from January 1, 1903, to be paid for in cash, or shares, or both, as may be arranged. The capital is 300,000 rupees [=$97,330], in 3000 shares.

THE SOUTHERN CEYLON TEA AND RUBBER CO., LIMITED.

ORGANIZED to purchase the property of the Udugama Tea and Timber Co. (in liquidation) and plant the estate in rubber. The authorized capital is 1,000,000 rupees [=$304,156.25], in 10,000 shares, of which 4500 shares are offered for subscription in Ceylon and in Australia. The company are paying 270,000 rupees [=$85,163.75] for 7398 acres, of which 480 are planted

in tea, with buildings and other improvements. The tea has been neglected, but it is expected that a profit from it can be realized up to 1910, when a profit can be derived from rubber (*Hevea*). A small amount of rubber already planted has grown well, and a new planting of 1500 acres is planned, the clearing to be begun about December 1. Directors: Hon. J. N. Campbell, Hon. W. H. Figg, and L. T. Bonstead (the vendor of the Udugama property). Whittall & Co., Colombo, are the agents and secretaries.

THE CEYLON RUBBER CO., LIMITED.

THIS company was registered at Colombo September 18, 1903, to acquire or create plantations of rubber. The authorized capital is 750,000 rupees [=$243,325], in 7500 shares. The first directors are F. L. Clements, Keith Rollo, and E. L. Grigson, the latter of George Steuart & Co., Colombo. The company have purchased 240 acres from the government in the Avisawella district. An issue of 1000 shares of stock is announced.

SAN PEDRO RUBBER PLANTATION CO.

[Amuy-Pa plantation, department of Palenque, state of Chiapas, Mexico. Office: Uihlein building, Milwaukee, Wisconsin. See THE INDIA RUBBER WORLD, February 1, 1901—page 154.]

THE committee of inspection of this plantation for the second year consisted of H. J. Smith and H. W. Hill, whose report is printed in 32 page pamphlet, more than half the space being devoted to photographic views, as being likely to give a better idea of the condition of work in progress than any amount of written description. The second year's work is stated to have embraced the clearing of 500 additional acres and the planting of 1,000,000 rubber (*Castilloa elastica*) seeds. This is the company headed by George W. Peck, former governor of Wisconsin.

SOLO-SUCHIL PLANTATION CO.

[Plantation at Solo-Suchil, canton of Manatitlan, state of Vera Cruz, Mexico. Office: 835 The Spitzer, Toledo, Ohio.]

INCORPORATED November 3, 1902, under New York laws; capital, $350,000. The company is a consolidation of three plantation companies: (1) The Ohio Coffee Growing and Trading Co., of Toledo, Ohio, organized six or seven years ago; (2) The Tres Rios Co., of Independence, Iowa; and (3) The Solo-Suchil Co., of Kansas City, Missouri. Their properties being adjacent, important economies in management are expected to result from consolidation. The location is in the "Dos Rios" region, fronting on the Solo-Suchil river, which is navigable to the port of Caatzacoalos, on the gulf. A statement issued by the company gives the following details:

PLANTATIONS.	Area Acres.	Acres Imp'ved.	Planted Rubber.	Planted Coffee.	Coffee Bearing.
Toledo.....	900	550	90	460	460
Tres Rios.....	1040	475	275	200	50
Solo-Suchil.....	575	100	75	100	100
Total.....	2515	1125	440	760	610

The total number of rubber trees planted to date is 264,000, which number will be reduced by thinning. The number of coffee trees is 408,120, of which a large proportion have come into bearing, so that the company already has an income from its plantation. Additional planting is planned, with a view to having a permanent stand of 300,000 rubber and 500,000 coffee trees. The company offer a certain amount of treasury securities to provide means for the new planting. The officers are: Henry Neel, president; Clark L. Cole, vice president; Henry F. Bleimeister, secretary and treasurer. The plantation manager is R. O. Price, who has had ten years of experience in planting on the isthmus of Tehuantepec. The names of two of the other directors—Harry W. Bennett and Squire Garnsey—are widely known in connection with Mexican rubber planting.

THE SOUTHERN RUBBER PLANTATION CO., LIMITED.

[Offices: Tulane-Newcombe building, New Orleans, Louisiana.]

INCORPORATED in July, 1903, under Louisiana laws, with $1,000,000 capital authorized, to establish a plantation of tropical products, including India-rubber, at Monte Christo, state of Chiapas, Mexico. Albert Mackie is president, A. R. Blakely vice president, P. H. Schniedau treasurer, and Harry C. Wildesen secretary. John Elsee and John C. Roberson are also directors, the former being plantation manager and the latter general manager, with offices in New Orleans. Mr. Roberson was the organizer of the company and was formerly assistant general manager of the Mexican Rubber Culture Co., of Portland, Oregon. At last accounts Messrs. Wildesen and Elsee had been in Mexico inspecting lands on which the new company hold an option.

RUBBER PLANTING COMPANY PUBLICATIONS.

SOLO-SUCHIL Plantation Co., Toledo, Ohio=(*a*) Coffee Growing and Rubber Cultivation. 32 pages and map. (*b*) First quarterly report of plantation manager, June 5, 1903. 4 pages.

San Pedro Rubber Plantation Co., Milwaukee, Wisconsin.=Report to the Contract Holders of the Amuy-pa Plantation, by Their Committee. 32 pages.

THE LITTLE KNOWN AMAZON REGION.

TO THE EDITOR OF THE INDIA RUBBER WORLD: As new companies continue to be reported for working rubber estates in South America, a few warnings supplementary to those given by Mr. Ashmore Russan in your journal of October 1, 1902, may not be inappropriate.

Most of the companies organized to do business here seem to have the vaguest ideas of Amazonian geography. Thus the Amazonas Rubber Estates, Limited, an English company, had one office at Manáos and the other, the manager's office, at Teffé, regardless of the fact that for business purposes Teffé was as far from the *seringal* as Manáos. There have been companies projected with headquarters hundreds of miles from their rubber fields, and without navigable streams between. As for the fields in question, they might be worked to advantage, but not with the manager located at points so remote.

When a Brazilian works a *seringal* he goes and lives there and manages it on the spot, which is the only way in which the business can be made to pay. Inexperienced managers are the cause of most of the trouble, and lack of care in choosing the site the cause of the rest, with the companies which come to grief out here. Like all other business, the management of rubber gathering requires experience and a wide knowledge of human nature, and in this case not a little of tropical biology. But the large companies which have been organized distrust the Brazilians, and those Europeans who have acquired the necessary knowledge and experince distrust the companies, and will not sell what they know for a mess of pottage. And so the companies go from bad to worse and finally wind up. When they get a good man they generally sack him or snub him, and good men don't like either process.

Experience in other parts of South America—in Rio, Buenos Ayres, or Pernambuco, for instance—is of no use on the Amazon, which is like no other part of the world. The only experience of use here is experience of the Amazon, its ways, its diseases, its peoples, its moods and fancies. Some day a Kipling will arise and sing the Amazon, and then people on the outside will begin to understand something of its charms and its relentless obedience to its own laws, and then perhaps companies will live and not die here. L. G.

Manáos, October 28, 1903.

A JAPANESE RUBBER FACTORY DAMAGED.

THE factory of the Fujikura Insulated Wire and Rubber Co., at Tokio, Japan, was demolished by a severe hurricane on the forenoon of September 23. The wind arose suddenly and unexpectedly during a thunderstorm, wrecking all the buildings and carrying some of the roofing and doors for a distance of more than a half mile. Three workshops were blown down, besides the rubber department, the office, shipping department, engine and boiler room, and workmen's boarding house. Though 60 men were employed at the time, in different departments, only a few were injured, and these only slightly. The effect of the storm was confined to a narrow area, including only about twenty of the neighboring buildings. The loss to the company was about 20,000 yen [=$10,000]. Temporary workshops were speedily erected, making use of available water

RUIN OF A PORTION OF THE FACTORY.

power, and by the end of the year the company hope to have completed the rebuilding of their works. The illustration which appears on this page is made from one of a series of photographs of the ruins, sent to THE IDIA RUBBER WORLD by Mr. Kenzo Okada, a member of the company, and a nephew of its founder, the late Mr. Zenpachi Fujikura. Mr. Okada will be remembered by not a few rubber men in the United States, where he worked for several years in acquiring a knowledge of the rubber industry. The works referred to above date from the first attempts made by Mr. Fujikura, in 1884, to insulate electrical wires with rubber. The business has grown gradually and now includes, in addition to insulated wire work, a waterproofing plant and the manufacture of various small articles of rubber.

A CABLE EXPERT ON WIRELESS SYSTEMS.

IN an address to the shareholders of the Commercial Cable Co., at their recent annual meeting in New York, the general manager, Mr. George G. Ward said, in relation to wireless telegraphy:

"At the last annual meeting some remarks were made by me in regard to wireless telegraphy and its effect upon submarine cables—we see no reason to change the opinion expressed at that time. Admitting the recent transmission of a message across the Atlantic without wires, radical improvements would have to be made in its developments before wireless could possibly hope to meet the demands of trade and commerce and engage in successful competition with submarine cables. A good deal has been said and advertised about the many wireless systems for the past two or three years. As yet there is nothing to show that messages can be transmitted without wires, even between short distances, with anything of the regularity, reliability, correctness, and secrecy at any and all times of the day and night, demanded of the existing telegraph systems and necessary for the protection of the customers' interests and the development of the telegraph business. Furthermore, the transmission of messages between the European and American coasts of the Atlantic is far from constituting a transatlantic telegraph service as it exists to-day. The essential adjunct of an extensive inland system for the distribution and collection of messages on the North American continent must not be lost sight of.

"A large part of the traffic passing by the Atlantic cables is destined for places remote from the seaboard. Messages to and from Chicago, St. Louis, San Francisco, Montreal, Toronto, etc., require and receive transmissions which are measured by minutes. This important traffic would be practically extinguished if senders could not rely on extremely rapid and accurate service.

"Nothing has occurred since I last addressed you to cause us to modify the conservative estimate then expressed and which I confidently repeat, that telegraphy by means of wires has little to fear from the competition of telegraphy without wires. For the benefit of those who do not share my confidence I may say that the etheric waves will be as obedient to us as to anybody if it should ever be found practicable to dispense with cables and wires. I wish to say we have every admiration for the eminent scientists connected with the discovery of wireless telegraphy, at the same time we are satisfied it has its limits."

GROWTH OF A GERMAN RUBBER FACTORY.

THE twenty-fifth anniversary of Philipp Penin Gummiwaaren-Fabrik, Actiengeselschaft (Leipzig, Germany), has been commemorated in a handsome souvenir brochure, giving the details of the growth of the business. Herr Penin began the manufacture of rubber tubing and other like articles, in a very small way, in the village of Plagwitz, before its inclusion in the city of Leipzig. A shanty with two windows served as his first factory. Being successful, he was not long in moving to a larger building, where he employed a 2 HP. gas engine. In 1884 he occupied a factory of much larger proportions, substituting steam power for the gas motor. In 1887 he took on the manufacture of hard rubber and red rubber goods, and opened a branch factory at Markranstädt (near Leipzig) and a store in Berlin. In 1888 he began making cut sheet, which before had been imported from England, and again enlarged his factory. In 1893 he bought more land and established an ice plant and cooling facilities required in the manufacture of sheet rubber. By that time 250 hands were employed. On June 29, 1894, a joint stock company was formed, Herr Penin retaining the management until his death, October 4, 1896. The factory was again enlarged in 1893, more boilers and engines being installed, and also an electric lighting plant. The branch factory at Markranstädt has also been enlarged several times. There are now employed 700 work people, seven steam engines with 400 HP., and three dynamos for supplying light and also power for the smaller machinery.

ORIGINAL PENIN FACTORY.

RECENT RUBBER PATENTS.

THE UNITED STATES PATENT RECORD.

ISSUED OCTOBER 6, 1903.

NO. 740,403. Ball [comprising an inner shell of elastic material containing compressed gas; a pressure resisting layer of windings of flexible material; a layer of elastic material having embedded therein substances adapted to give weight to the ball; and an outer layer of elastic material]. H. D. Day, Providence, Rhode Island.

740,443. Exercising machine. J. C. Korth, Harrison, New York.

740,578. Pneumatic tire [double tube]. P. Magnus, Cullingwood, Victoria.

740,618. Fountain pen. John Blair, New York city.

740,664. Hose coupling. C. W. F. Kroll, Jersey City, New Jersey.

740,665. Horseshoe pad [to be interposed between the hoof and the shoe]. A. Larsen, Chicago.

740,760. Rubber heel holder [metal plate for attachment to the shoe, having flanges to retain the heel]. P. A. Jahn, Cleveland, Ohio.

740,877. Clincher tire for vehicle wheels. Albert de Laski and P. B. Thropp, Trenton, New Jersey.

Trade Mark.

41,210. Rubber boots and shoes. Hood Rubber Co, Boston. *Essential feature*—Either the picture of a bulldog or the word "Bulldog" or both. Used since February 1, 1903.

ISSUED OCTOBER 13, 1903.

741,056. Piston packing. Marshall Montgomery, Philadelphia

741,110. Horseshoe [with detachable heel calks each consisting of a metal skeleton and a rubber body]. F. N. Cline, Chicago.

741,173. Sanitary urinal. J. Seidel, Milwaukee, Wisconsin.

741,193. Wheel for vehicles [combining a felly, a tire support mounted thereon and provided with two or more tire supporting grooves, and a corresponding number of solid tires]. A. Turkington, Lafayette, Indiana.

741,256. Art of extracting gum [meaning rubber or rubber like gum; the process consists in treating the plants with a solvent for the gum and then treating the solution with an alkali whereby the gum is separated]. W. A. Lawrence, New York city, assignor to the Continental Rubber Co., a corporation of New Jersey.

741,257. Apparatus for extracting gum. *Same.*

741,258. Art of extracting rubber without solvents. *Same.*

741,259. Composition of matter [an alkaline solution containing resin derived from a plant of the genus *Parthenium* and the solvent for both the gum and resin of the new plant]. *Same.*

741,260. Process of refining crude rubber. *Same.*

741,360. Toy. W. M. Moseley, Elgin, Illinois.

741,401. Vehicle wheel rim [adapted to pneumatic tires]. H. Harris, assignor of one half to W. J. Gorham, both of San Francisco.

741,437. Bag fastener [combination of a paper bag and a rubber band permanently attached thereto]. C. W. Bader, assignor of one half to Henry Kann, both of Chicago.

741,521. Body support. W. U. G. Martin, Indianapolis, Indiana.

ISSUED OCTOBER 20, 1903.

741,714. Armor for pneumatic tires. E. C. Radick, Menasha, Wisconsin.

741,788. Rubber tire joint closing machine. F. H. Guber, assignor to J. S. Manter, both of Kansas City, Missouri.

741,899. Dental dam. H. Craigie, assignor of one half to J. W. Rooch, both of San Francisco.

741,966. Exercising device. C. Hernshein, New York city.

742,004. Golf club [the handle provided with a loop of elastic material]. W. C. Carnegie, Cumberland Islands, Georgia.

742,013. Flexible ruler. E. A. A. Dunn, Ballarat, Victoria.

Trade Marks.

41,322. Rubber belting. Gibbens & Stream, New Orleans. *Essential feature*—The representation of a mosquito associated with the word "Mosquito." Used since July 25, 1902.

41,344. Solid and pneumatic tires. The Goodyear Tire and Rubber Co., Akron, Ohio. *Essential feature*—The word "Reliance." Used since September 1, 1903.

ISSUED OCTOBER 27, 1903.

742,362. Elastic horseshoe. E. J. Sinnott, Erie, Pennsylvania.

742,440. Swimming mitt. H. W. Johnson, Lima, Ohio.

742,486. Motor wheel [together with pneumatic tire]. Louis Peter, Frankfort o/Main, Germany.

742,634. Medicament injector. T. E. Hall, Chicago.

742,635. Medicament injector. *Same.*

742,655. Hose coupling. J. Homola, Allegheny, Pennsylvania.

742,656. Hose cut-off compressor. E. Horsey, Kingston, Canada.

742,769. Fountain pen. P. Wheatley, Syracuse, New York.

[NOTE.—Printed copies of specifications of United States patents may be ordered from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

THE BRITISH PATENT RECORD.

[* *Denotes Applications from the United States.*]

APPLICATIONS—1903.

19,930. G. T. Shilton and A. Schultze, Glasgow. Pneumatic tire cover. Sept. 16.

19,949. W. Philipson, T. W. H. Philipson, and P. C. Philipson, London. Pneumatic tire. Sept. 16.

19,969. J. P. E. Henery, London. Golf ball. Sept. 16.

19,990. G. Green and J. Miller, London. Solid tire for heavy vehicles. Sept. 16.

20,013. E. B. Killen, Bangor, Ireland. Pneumatic tire. Sept. 17.

20,036. J. Voet. London. Elastic tire for vehicles. Sept. 17.

20,174. D. Woodhouse, Flixton, Lancashire. Rubber boot and shoe preserver. Sept. 19.

20,264. J. D. Gamble, Sunderland. Rubber stamp. Sept. 21.

20,281. S. C. Godfrey, Surbiton. Pneumatic tire shield. Sept. 21.

20,356. W. H. Freeman, London. Union or connection for rubber hose. Sept. 22.

20,359. C. C. Hanner, Manchester. Tire for cycles and vehicles. Sept. 22.

20,369. C. Glass, Magdeburg, Germany. Air cushion. Sept. 22.

*20,395. P. D. Thropp and Albert de Laski, London, Tire for vehicle wheels. Sept. 22.

20,444. R. Bell, Glasgow. Tire for motors. Sept. 23.

20,449. G. Lees, Manchester. Tire and tire cover for motors. Sept. 23.

20,464. W. Heatley, London. Pneumatic tire cover. Sept. 23.

20,489. L. Johnstone, London. Pneumatic or cushion tire. Sept. 23.

20,668. C. Durand, London. Pneumatic tire. Sept. 25.

20,857. J. Roberts and J. Stuart, Liverpool. Device for repairing tire punctures. Sept. 28.

20,880. E. B. Killen, Bangor, Ireland. Pneumatic tire. Sept. 29.

20,898. D. Rowe, London. Non-puncturable tire. Sept. 29.

20,983. J. A. Jackson, Birmingham. Mount for rubber stamps. Sept. 30.

21,006. L. I. Perry, London. Pneumatic tire. Sept. 30.

21,038. R. J. Barbour, London. Rubber tapered heel and sole plug. Sept. 30.

21,165. A. W. Williams, London. Revolving rubber heels. Oct. 2.

21,176. F. Pudney, London. Tool for cleaning and roughing the surface of cycle tires. Oct. 2.

21,242. G. W. Dawes, Manchester. Heel pads for boots. Oct. 3.

21,266. H. W. C. B. Cave, London. Pneumatic tire. Oct. 3.

21,270. H. Madden, London. Pneumatic tire cover. Oct. 3.

21,301. L. Johnstone, London. Pneumatic or cushion tire. Oct. 3.

21,334. J. Donovan, West Hartlepool. Tire for motors. Oct. 5.

21,375. H. D. Bailey, London. Pneumatic tire. Oct. 5.

21,445. A. Williams, London. Non-side slipping and skidding brake for rubber tired vehicles. Oct. 6.

21,455. G. A. Dell, London. Golf ball. Oct. 6.

21,606. T. Gare, Manchester. Rubber tired wheel. Oct. 8.

21,613. C. H. Wilkinson, Huddersfield. Revolving heel tread. Oct. 8.

21,625. W. C. Sturman, Fallowfield. Revolving heel pad. Oct. 8.

21,651. W. E. Vincent, London. Pneumatic tire. Oct. 8.

21,683. G V. De Luca, London. Golf ball. Oct. 8.

21,689. W. S. Simpson, London. Pneumatic tired wheel. Oct. 8.

21,690. H. W. Dover, London. Pneumatic tire. Oct. 8.

21,749. A. B. Brown, Edinburgh. Pneumatic tire cover. Oct. 9.

21,773. Christian H. Gray and T. Sloper, London. Pneumatic tire valve. Oct. 9.

21,802. W. Stephenson, Liverpool. Improved canvas for tires. Oct. 9.

21,867. F. B. Wilton and R. W. Cox, Birmingham. Pneumatic tire. Oct. 13.

*21,890. William Appleton Lawrence, London. Improvements in apparatus for an art of extracting rubber gum, etc. Oct. 12.

22,019. T. P. Spencer, London. Metal plate in connection with revolving rubber heel pad. Oct. 13.

22,033. R. Haverland, London. Pneumatic tire for vehicles. Oct. 13.

22,141. F. I. Gibbs, Birmingham. Resilient tire for motors. Oct. 14.

22,197. C. M. Jordon, London. Armor plate protection for motor tires. Oct. 14.

22,217. F. R. Jack, Cullercoats, Northumberland. Pneumatic life saving belt. Oct. 15.

22,232. Mary Courtney, Southampton. Gloves for surgical use. Oct 15.

22,400. A. Pullbrook, and E. H. Pullbrook, London. Air cushion. Oct. 16.

22,406. A. L. Jones, Radstock, Somerset. Non-collapsible pneumatic cycle and motor tire. Oct. 17.

22,407. C. E. Jenkins, Cardiff. Rubber strip molded on both sides to form a cover for pneumatic wheels. Oct. 17.

22,607. E. W. Wooders, Manchester. Heel pads for boots. Oct. 20.

PATENTS GRANTED.

[ABSTRACTED IN THE OFFICIAL JOURNAL, SEPTEMBER 23, 1903.]

12,199 (1902). Hernia truss. E. O'Conor, Westport, New Zealand.

12,234 (1902). Horseshoe pad. M. A. Birkmyre, Whitewell, near Belfast.

12,304 (1902). Pneumatic tire. G. W. Pitt and S Ingham, London.

*12,462 (1902). Golf ball. E. Kempshall, Boston, Massachusetts.

*12,468 (1902). Golf ball. *Same.*

*12,473 (1902). Sponge substitute. H. H. Lake, London. (Alexander Straus, New York.)

*12,475 (1902). Golf ball. E Kempshall, Boston, Massachusetts.

*12,477 (1902). Golf ball. *Same.*

*12,479 (1902). Golf ball. *Same.*

*12,480 (1902). Golf ball. *Same.*

12,484 (1902). Heel pad. P. E. Roberts, Preston.

12,486 (1902). Pneumatic tire [with inner tube having closed ends]. T. Reid, Northfield, Worcestershire.

12,491 (1902). Hoof pad. J. Singleton, Manchester.

12,521 (1902). Elastic tire [of helical springs in a rubber cover]. A. Walters, London.

*12,580 (1902). Hose coupling [especially for steam hose pipes on railways]. E. E. Gold, New York.

*12,675 (1902). Single tube vehicle tire. J. W. Blodgett, Chicago, Illinois.

[ABSTRACTED IN THE OFFICIAL JOURNAL, SEPTEMBER 30, 1903.]

*12,876 (1902). Cleaning apparatus [for carpets and the like, by means of compressed air, through rubber hose]. J. S. Thurman, St. Louis, Missouri.

*12,968 (1902). Conveyer [including rubber belts for carrying materials]. J. J. Ridgway, Rose Bank, Staten Island, New York.

13,133 (1902). Reservoir pen. G. W. Perks and F. C. Thacker, Birmingham.

13,163 (1902). Pneumatic tire [protected by a flat sectioned band of whalebone in the tread]. G. H. Hastings, Oporto, Portugal.

13,280 (1902). Pneumatic tire [with outer cover formed free from canvas either by forcing rubber through a die or by shaping on a mandrel and afterwards vulcanizing in a mold]. G. E. Heyl-Dia, Manchester.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 7, 1903.]

13,378 (1902). Heel protector. J. J. Eckert, Strood, Kent.

13,423 (1902). Pneumatic tire [prevented from slipping by a series of metal blocks]. C. H. Burt, London.

13,477 (1902). Heel protector. J. Thomas, Bath.

13,805 (1902). Solid rubber vehicle tire. J. Goldworthy, Manchester.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 14, 1903.]

14,092 (1902). Surgical truss. A. Schumacher, Strasburg, Germany.

14,104 (1902). Rubber heels and soles. J. Fenwick, Accrington, and R. Ingram, Hurcoat.

14,353 (1902). Pneumatic tire [with protective band of steel] J. M. Welch, Glasgow.

14,381 (1902). Massage appliance. T. Schillberg, Glasgow.

14,562 (1902). Spraying device for plants [for use with insecticides, disinfectants, and the like] W. I. Scholes, Eccles.

14,545 (1902). Elastic tire for vehicles [involving the combination of detachable springs and a rubber facing]. J. W. Mooring, Dunstable.

*14,569 (1902). Finger pad for turning book leaves. L. F. Marsh, Weston-super-Mare (J. G. Marsh, Manchester, New Hampshire).

*14,609 (1902). Life saving armlets. I. W. Maccolini, Inwood, New York.

*14,610 (1902). Cow milker. D. T. Sharples, West Chester, Pennsylvania.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 21, 1903.]

*14,695 (1902). Pneumatic tired wheel. A. Honrath, New York city.

14,756 (1902). Shower bath. J. Kleinberg and B. Fraenkel, London.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 28, 1903.]

*14,975 (1902). Golf ball. E. Kempshall, Boston, Massachusetts.

14,976 (1902). Golf ball [" with India-rubber cores, which are rolled immediately the rubber is taken from the India-rubber tree, the cores being subsequently rolled with or without twine and covered with Gutta-percha"]. W. Nevett, Queen's Gate, South Wales.

*15,156 (1902). Golf ball. E. Kempshall, Boston, Massachusetts.

*15,157 (1902). Golf ball. *Same.*

*15,158 (1902). Golf ball. *Same.*

*15,159 (1902). Golf ball. F. H. Richards, Hartford, Connecticut.

THE GERMAN PATENT RECORD.

PATENTS GRANTED.

146 857 (Class 39*b*) Process for manufacture of a substitute for Gutta-percha. M. Franklin, Hamburg. Oct. 7.

146,989 (Cl. 63*c*). Method of attaching rubber tires to wagon wheels. Walter Ira Gregory, Springfield, Massachusetts, United States. Oct. 7.

147,152 (Cl. 63*c*). Insert for rubber tires. P. W. Tillinghast, Edgewood, and A. T. Vigneron, Providence, Rhode Island, United States. Oct. 14.

147,412 (Cl. 71*a*). Shoe with elastic tread. H. Dick, Mülhausen, Alsace. Oct. 21.

DESIGN PATENTS GRANTED [GEBRAUCHMUSTER].

207,892 (Class 15*d*). Combined rubber and cotton cloth envelope for press cylinder on book presses. Marie Ittrich, Charlottenberg. Sept. 30.

208,013 (Cl. 63*c*). Rubber tire with wedge shaped running edge and side bays. M. Polack, Waltershausen. Sept. 30.

208,607 (Cl. 30*d*). Sanitary napkin supporter. Frau Rudolphine Kirchner, Berlin. Oct. 7.

208,485 (Cl. 70*a*). Elastic slate pencil or stylus holder. A. Cogoli, Trient. Oct. 7.

208,839 (Cl. 30*g*). Rubber corks in connection with celluloid plate having camels hair brush or glass rod attached. Fabrik-Pharmaceut-Bedarfsartikel. E. Rothholz & Co., Berlin. Oct 7.

208,542 (Cl. 47*f*). Rubber hose with woven interlining and invisible metallic protection. Rheinische Gummi- und Celluloid Fabrik, Neckarau-Mannheim. Oct. 7.

208,861 (Cl. 47*f*). Hose with woven walls and lined with metal bands woven like cotton strands in which the ends of the bands are retained by rings. Continental Caoutchouc- und Guttapercha-Compagnie, Hannover. Oct. 7.

208,991 (Cl. 3*b*). Trousers supporters, of rubber bands and cords running through eyes and over rollers. D. Grote, Nachfolger, Unter-Barmen. Oct. 14.

208,933 (Cl. 30*e*). Rubber air pillows with knitted cover or lining. C. R. Schwalenberg, Mannheim. Oct. 14.

208,906 (Cl. 47*d*). Driving belts of rubber of any desired cross-section with or without steel band, for motor cars. Frau B. Polack, Waltershausen. Oct. 14.

208,887 (Cl. 3*b*). Elastic girdle for the limbs underlaid with elastic rubber bands. Frau P. Halbich, Berlin. Oct 21.

209,733 (Cl. 30*d*). Vaginal syringe. E. Dufft, Cassel. Oct. 21.

APPLICATIONS.

5,064 (Class 28*b*). Rubber cover, with or without insert, for work table in leather dressing machines. Vaugn Machine Co. G. m. b. H., Frankfurt a/Main. Sept. 30.

34,540 (Cl. 30*b*). Caoutchouc plates for teeth. Rosa Bauer, Cologne. Oct. 7.

12,865 (Cl. 54*d*). Attachment for machine for folding ice-bags of rubber, paper or other material. Gummiwaaren- u. Bartbinden-Fabrik, O. Dilner, Leipzig. Oct. 21.

THE LATE LOUIS K. McCLYMONDS.

LOUIS K. McCLYMONDS died on the evening of November 7, 1903, at his residence in South Orange, New Jersey, from the effects of a stroke of apoplexy which he had sustained just one week previous. Mr. McClymonds was born June 12, 1850, at New Lisbon, Ohio, where his father, John McClymonds, a native of Pennsylvania, had settled about 1842, and engaged in the banking business. About 1860 Mr. McClymonds removed with his family to Massillon, Ohio, and assisted in organizing there the Union National Bank. In 1869 he removed to Cleveland, where, with Robert Hanna, he organized the Ohio National Bank—afterward the State National Bank—Mr. Hanna serving as president and Mr. McClymonds as cashier. Upon Mr. Hanna's death Mr. McClymonds succeeded to the presidency and held the office until his retirement from active business in 1887.

Louis McClymonds acquired his education at Massillon during the residence there of his family, being graduated from the high school in 1868. He began his business career in 1871 as bookkeeper and correspondent in the Cleveland bank with which his father was connected. Among the many business enterprises with which the elder McClymonds was connected at various times was the Cleveland Rubber Co., a manufacturing concern, which he assisted in organizing in the early 70's, and in which he retained an interest until his death. The business had not become extensive, however, and had not proved very successful when, in 1873, Louis McClymonds purchased an interest in it. He knew practically nothing about the rubber business at that time, but devoted himself closely to mastering its details. There are men still employed in the factory who remember to have seen him many times in the early days operating a mill. In a few years he had obtained control of the company and become its president. He enlarged its plant and extended the business; he introduced new methods and patented machinery for special work, and made great progress in the trade generally. Mr. McClymonds stated recently that when he assumed the management of the Cleveland Rubber Co. their annual sales did not exceed $30,000 a year. Within twenty years their capital had been increased to $650,000 and the volume of business proportionately.

THE LATE LOUIS K. M'CLYMONDS.

In 1881 Mr. McClymonds organized the Chicago Rubber Works, incorporated in 1882 with $80,000 capital, which amount was successively increased until it reached $250,000 in 1890. Mr. McClymonds was president of the new company, and for the next ten years he divided his time between Cleveland and Chicago, active in the management of the two concerns. At the time of the establishment of the Chicago factory Gilbert W. Blanchard, who had been employed at Cleveland, was placed in charge of the new enterprise, and continued in close association with Mr. McClymonds up to the time of the retirement of the latter from the rubber business.

In 1892 these two rubber companies were combined with the New York Belting and Packing Co., Limited, and one or two other concerns, under the name of the Mechanical Rubber Co., under the management of Mr. McClymonds, who at that time removed his residence to New York. A more extensive combination resulted in 1899, when the companies referred to were all included in the Rubber Goods Manufacturing Co. In December, 1902, Mr. McClymonds resigned as a director, president, and general manager of the Mechanical Rubber Co., and as a director and officer of the several allied companies, with the idea that, having amassed a fortune, he would devote his remaining years to a life of leisure. He recently arranged for the sale of his home at South Orange, and purchased "The Knolls," one of the finest country estates in that region, and it was while supervising the remodelling of his prospective home that his final illness came.

In addition to the services held at South Orange, New Jersey, services were also held on November 11, at Massillon, Ohio, where the body was placed temporarily in the Russell family vault. The Rev. Dr. R. R. Bigger, pastor of the Presbyterian church at Massillon, and the Rev. Dr. J. W. Robins, of the First Methodist Episcopal church, officiated. The pallbearers were C. M. Russell, Warren E. Russell, and Arvine Wales, of Massillon; T. F. Blanchard and E. B. Halliday, of Chicago; M. I. Blanchard and R. S. Pierce, of Cleveland; and John M. Danner, of Canton, Ohio.

Mr. McClymonds is survived by Mrs. McClymonds, whom he married in 1875. She was Miss Annie M. Russell, whose father, Nahum S. Russell, was the founder of the Russell Engine and Agricultural Machine Works at Massillon. The other immediate relatives are two sisters—Misses Mary and Bertha McClymonds—residents of Cleveland, and a brother, Colonel J. W. McClymonds, of Massillon.

Mr. McClymonds's father, who did not retire from business until 76 years of age, was a man of great sagacity, sound judgment, and high integrity, and died possessing the esteem of all who knew him, and his son manifested the same qualities. In the management of the rubber companies in which he was interested, he was able and aggressive. Writing of Mr. McClymonds in the Cleveland *Plain Dealer*, James H. Kennedy says: "He made friends in a quiet way, as he was in all ways a reserved man, except to his intimates, and won the respect and affection of them all. For years he lived in a pleasant home in Audubon Park, in the northern part of New York city, and a couple of years ago purchased a handsome place in South Orange, New Jersey, which he was gradually fixing up to his liking. He was passionately fond of outdoor life and surroundings, loved anything that suggested the farm; was fond of horses, and cows, and dogs. His purpose in locating in Orange was that he could live more of this outdoor life, free to indulge these tastes. He could well afford to, as he had accumulated a large fortune in the years of his business life. He was a man of fine personal qualities and leaves many mourning friends in New York."

Mr. McClymonds was the president of the Peerless Manufacturing Co. (Cleveland), incorporated in 1889 for the manufacture of clothes wringers. In 1892 they commenced the manufacture of bicycles, as a separate branch, still continuing the manufacture of wringers. Both of these departments were closed in 1900, and the manufacture of the De Dion automo-

bile was commenced, under a license from the French patentees. Since then has been developed the well known "Peerless" automobile, which has taken high rank among American built machines. Meanwhile the name of the company has become the Peerless Motor Car Co. Mr. McClymonds's death will make practically no change in the affairs of the Peerless company. L. H. Kittredge, who has been in active charge of the business for a number of years, will continue as treasurer and general manager. E. H. Parkhurst, formerly secretary of the New York Belting and Packing Co., Limited, of New York, has accepted the position of secretary of the company. Mr. McClymonds is understood also to have been interested extensively in street railways in Syracuse, N. Y., and Wheeling, W. Va.

* * *

GEORGE BORGFELDT, founder of the extensive New York importing house of George Borgfeldt & Co., died November 20, 1903, at Doeblinz, Vienna, Austria. He was born August 25, 1833, in Meldorf (Scheswig-Holstein), Germany, and at the age of 20 came to the United States and secured a clerical position. In 1857 he opened a store at Nashville, Tennessee, and after eight years settled in New York and became engaged in the commission business. Three years ago he retired. The Borgfeldt house has the agency for the United States and Canada of the Hannoversche Gummikamm-Compagnie, Actiengesellschaft (Hanover Rubber Co., Limited) of Hanover, Germany.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of September, 1903, and for the first nine months of the calendar year, for five years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
September, 1903 ...	$ 64,947	$120,695	$ 200,360	$ 386,002
January-August.....	568,797	507,897	1,655,396	2,732,090
Total, 1903.....	$633,744	$628,592	$1,855,756	$3,118,092
Total, 1902.....	513,636	718,759	1,467,000	2,699,395
Total, 1901.....	447,653	567,397	1,321,115	2,336,165
Total, 1900.....	401,604	411,899	1,117,539	1,931,042
Total, 1889. ...	(a)153,462	203,921	1,147,165	1,504,548

(a) Included in "All Other" prior to July 1, 1899.

NINE MONTHS FOR LAST TWO YEARS COMPARED.

Gain in belting, packing and hose....	$120,108	
Gain in "All other rubber".....	388,756	$508,864
Loss in boots and shoes.....		90,167
Net gain in 1903.....		$418,697

RUBBER SHIPMENTS TO NONCONTIGUOUS TERRITORIES.

OFFICIAL statement of values, for the three months, July-September, of manufactures of India-rubber:

	1902.	1903.
Alaska.....	$ 39,388	$ 43,359
Hawaiian Islands.....	11,760	18,156
Porto Rico.....	14,433	16,746
Philippines.....	52,495	46,672
Total.....	$119,076	$124,833

IMPORTS INTO THE UNITED STATES.

VALUES for the first nine months of four years:

	1900.	1901.	1902.	1903.
India-rubber goods.	$432,907	$363,254	$414,121	$544,048
Gutta-percha goods.....	210,576	86,575	84,765	410,325
Total.....	$643,483	$449,829	$498,886	$954,373

STATISTICS OF THE RUBBER FOOTWEAR MOVEMENT.

FROM official returns of various countries for the nine months of January-September, 1903, values converted to United States money at par of exchange. The sign + indicates an increase over last year and — a decrease:

	Imports.	Exports.
Germany.....	$753,746+	$330,344+
Great Britain.....	[a 819,918]	618,191+
United States....-	None	628,592—
France (special commerce).	402,598+	95,342—
Austria Hungary.....	168,236+	394,145+

[a—Estimate based upon statistics for preceding two years.]

GERMAN STATISTICS OF RUBBER FOOTWEAR.

NINE months—January to September inclusive:

	IMPORTS.			EXPORTS.		
COUNTRIES.	1901.	1902.	1903.	1901.	1902.	1903.
Russia.... .*kilos.*	425,300	317,400	395,500	....	....	....
United States...	50,800	78,400	87,000	....	.. ..	....
Great Britain	20,800	12,700	28,400	118,000	186,100	169,000
Austria Hungary.	19,500	8,800	51,800	.. .	....	....
Sweden.....	15,000	24,900	9,000	. ..	....	....
Switzerland.....	....	....	....	4,000	9,900	13,400
Roumania	....	....	. ..	2,900	13,000	....
Other countries..	2,800	9,000	4,100	47,600	74,600	95,100
Total, *kilos*..	534,200	451,200	575,800	172,500	283,600	277,500

AUSTRO HUNGARIAN STATISTICS OF RUBBER FOOTWEAR.

NINE months—January-September, 1903—in kilograms:

IMPORTS.

Russia...	91,000	Sweden..... ..	1,200	Total.	127,500
Great Britain..	11,800	France.....	600	Nine mos.'02.	115,400
United States.	11,700	Returned		Nine mos.'01.	122,300
Germany.	7,200	goods.....	4,000		

EXPORTS.

Turkey.. ...	90,200	Great Britain .	32,700	Bulgaria.....	6,100
France.	83,000	Italy..... ...	19,400	Other lands...	12,300
British India..	81,700	Belgium.....	16,700		
Germany. ...	66,100	Egypt.....	9,300	Total.....	485,400
Roumania ...	59,700	Switzerland...	8,200	Nine mos.'02.	366,200

THE AMAZON RUBBER CENTERS.

THE *Brazilian Review* (Rio Janeiro) says: "Pará papers are big enough in all conscience, but are full of nothing but politics and give little or no news of general interest. After reading a dozen or two we have been unable to discover a single word as to the prospects of the rubber season, whether it is likely to be good, bad, or indifferent. Not a word, even, as to the condition of the rivers, though to judge by the entry at Manáos of 15 steamers with 582 tons it is presumed the season has begun."

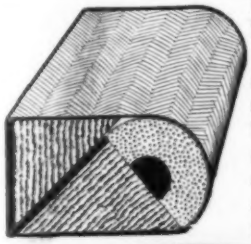
A correspondent writing from Manáos to the Pará *Folha do Norte* says: "In a few years Manáos will be far and away above Pará. The buildings are finer, the tramways better, the people more animated, and the women prettier. Here everyone seems satisfied and hopeful. There from the crown of their hats to the soles of their boots, everyone betrays a state of impecuniosity! Manáos is going up whilst Pará is going down."

ASBESTOS IN FINLAND.—Rudolph Kroseberg (Berlin W. 15, Germany) informs THE INDIA RUBBER WORLD that while the existence of asbestos in Finland has been known for several years past, the exact location and extent of the best quality has been determined only very lately. The location is in the center of Finland, convenient by railway to the seaport of Wiborg. The quantity he reports very large. The substance is stated to be very light in specific gravity, almost snowwhite, smooth in fiber, "the longer parts of which can be spun alone or together with other qualities of asbestos, while the short parcels will do most excellent service as insulating material, filtering, pasteboard, and for other purposes."

NEW GOODS AND SPECIALTIES IN RUBBER.

PILLEY'S EXPANSION WEDGE PACKING.

THE merits of the article herewith illustrated are that it has both a perfect expansion and a practical wedge. The parts are so placed as to afford the greatest amount of wear with the least possible friction. The material is finely woven cotton duck, with high quality rubber friction between the plies. It contains no loosely woven hemp or jute to rot out and cause trouble in the valves, and, not being loaded with unnecessary oil and tallow, it weighs much less than other wedge packings, resulting in less cost to the purchaser. This packing is made in all sizes, from ¼ inch to 1½ inches (by sixteenths), and is furnished in rings cut and molded to fit rods, or in 5 pound boxes up to and including ⅝ inch—larger sizes are made in 12 foot lengths—and carefully wrapped in muslin for protection against dust and grit. This packing is adapted for steam, water, ammonia, hydraulic, air, oil, and other purposes, and is patented. [Pilley Packing and Flue Brush Manufacturing Co., No. 606 South Third street, St. Louis.]

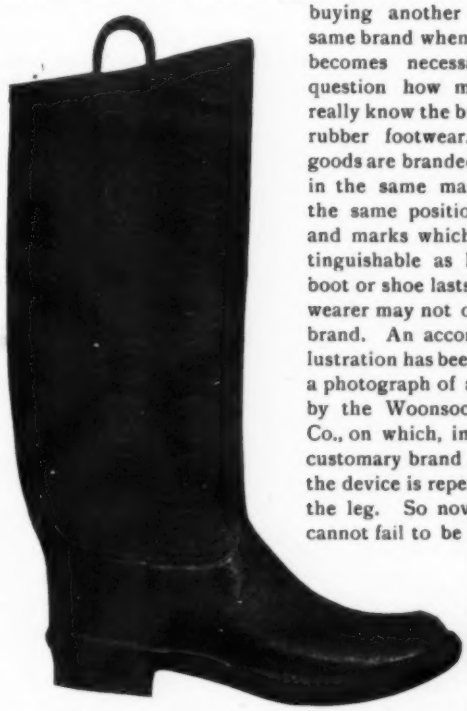


HANOVER EXCELSIOR ATOMIZER.

THE advantage claimed for an atomizer with a double rubber bulb is that a continuous spray is obtained with slighter effort than with a single bulb. Where long application is necessary, the hand may become tired by the constant pressure of the bulb, and a device which prevents such fatigue is exceedingly desirable. It is also pointed out that where the rubber used is of the proper quality less hand pressure is required than in the case of other rubber, on account of the bulb yielding more readily to pressure, and this merit is possessed by the atomizer shown in the illustration. [Hanover Rubber Co., Limited—George Borgfeldt & Co., American agents, New York.]

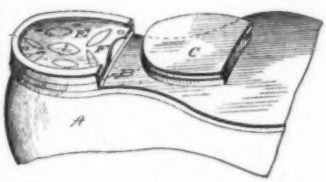
A RUBBER BRAND THAT CAN BE SEEN.

WHILE it is to be expected that the wearer of a rubber boot or shoe who has been well satisfied with it will feel confidence in buying another pair of the same brand when another pair becomes necessary, it is a question how many persons really know the brand on their rubber footwear. All such goods are branded on the sole, in the same manner and in the same position, in letters and marks which remain distinguishable as long as the boot or shoe lasts, and yet the wearer may not often see the brand. An accompanying illustration has been made from a photograph of a boot made by the Woonsocket Rubber Co., on which, instead of the customary brand on the sole, the device is repeated all over the leg. So novel a feature cannot fail to be observed by the wearer every time he sees the boot, and thus become firmly impressed upon his mind. The manufacturers, in thus seeking to connect their name with their product, evidently go upon the assumption that, a pair of their boots having been given a trial, the wearer will want another pair of "Woonsockets" when the time comes for replacement. And yet these boots are not regarded as needing to be replaced very often.



A RUBBER HEEL HOLDER.

THE device here illustrated involves the combination, with the heel, of a metal plate secured to the bottom of the heel, said plate having its side and rear edges bent downward and inward to form a retaining flange, a downwardly projecting tongue formed integral with the forward edge of the said plate, and a rubber heel arranged between the said flange and tongue of the said plate. Philip A. Jahn, Cleveland, Ohio, has obtained United States letters patent [No. 740,760] on this device.



A RUBBER AUTOMOBILE VEIL.

AMONG the novelties in draped veils for ladies' wear is one of tan rubber. It is gathered around the top on a ribbon, which is tied under the brim of the hat and is then thrown

over it. It is absolutely waterproof and dustproof. It folds in a case the size of a ladies' pocketbook and can be carried without any inconvenience. It looks like a silk chiffon veil, and is just as light. These veils are particularly adapted for automobiling, driving, and stormy weather. It will fit over a hat of any size and will not harm the trimming. The demand for these veils is constantly increasing as the ladies realize their many advantages.

CRAVENETTE IMPORTERS WIN.

THE decision of the board of United States general appraisers against Brown & Eadie relating to a protest made by them against the collector of customs at New York, was reversed on November 25 by Judge Townsend in the United States circuit court. The case is known as the Cravenette cloth case, and comes under the Tariff act of 1890.

In 1893 Brown & Eadie made an importation of cravenette cloth which was assessed for duty by the collector of customs as woolen or worsted cloth, under said Tariff act at 44 cents per pound and 40 per cent. *ad valorem*. The importers filed a protest with the board of general appraisers, who upheld the collector. In their protest Brown & Eadie claimed that the merchandise was assessable as waterproof cloth at 15 cents per square yard and 30 per cent. *ad valorem* under paragraph 369.

The opinion of the board in overruling the protest was written by Judge Henderson M. Somerville. In his decision Judge Somerville stated that cravenette cloth was not a waterproof but was a cloth which had been subjected to a process which made it water repelling although it was not absolutely waterproof, inasmuch as a quantity of water would soak through it. His opinion further stated that the commercial interpretation of the meaning of waterproof cloth was a cloth in which was rubber, oilcloth or some material rendering it waterproof in fact as well as name.

The attitude of the government in the matter is, that if woolen cloth after undergoing a process can be classified as waterproof the entire woolen schedule is liable to be abolished.

Over 500 similar cases are suspended awaiting the outcome of the final decision in regard to cravenette cloth. The case will be taken to the United States court of appeals.

RUBBER HOSE STILL IN USE.

RUBBERMEN have their full share of the privilege of reading obituaries of their business, and no doubt some of the obituaries that are published escape their notice. That may be the case with one published more than a year ago in the Philadelphia *Record* which is brought to attention at this late day only on account of the exceeding liveliness of the supposed corpse.

The article in question was an account of a metal hose which seems on paper to be an excellent device for some kinds of work to which rubber hose is not perfectly adapted. But the point of present interest lies in the opening sentence of the article, which reads: "Rubber has been entirely supplanted in the manufacture of hose, an industry which it was long thought could be conducted only by the use of the sap of the rubber tree."

We may pass without comment the writer's evident profundity of knowledge of crude rubber and stop only long enough to query what he supposed the manufacturers of rubber hose were doing with their product. It is of interest to note, however, that there was never a year in which rubber hose was produced in so great quantities as the year directly following the entire supplanting referred to by the Philadelphia discoverer, and when sales were so large in amount. Rubber is still used in fire hose, in garden hose, in brake-coupling hose, and in all the dozens of minor varieties of hose that are made and adapted to special purposes.

One sometimes wonders at the persistence of the rubber hose market, but reflection upon the growing demand especially for the kinds just specified makes the problem an easy one. Besides the natural demand to replace worn out goods, there is a rapid growth in all our cities, necessitating new supplies of fire hose for new districts and garden hose for lawns and gardens cultivated on what has been waste land. The rubber hose business in all its branches is very much alive; and we do not hear that the metallic substitute has even made its competition felt. The obituary will have to wait.

GENERAL JEAN NOT FORGOTTEN.

THE following, from the *United States Investor* (Boston), recently, refers evidently to General Joseph M. Jean, mentioned some years ago in THE INDIA RUBBER WORLD in connection with the "Jean Rubber Co.," as well as the company named below:

"**9922.** (Allentown, Pa.). We would be pleased to learn something in reference to the Franco-American Rubber Co. We believe that this is a company incorporated under the laws of the state of West Virginia, with offices at New York.

"Ans.: We can find no record of this company in New York city. From an authority on rubber and rubber companies, however, we learn that such a company existed back in 1896, though its life was short and sweet. A certain Frenchman, ex-army officer and consul, for want of some more lucrative means of employment, finding some rubber lands in French Guiana, conceived the brilliant idea of floating a rubber company that should rival the wonders of the "Arabian Nights." Some influential New York people were got into the directorate and enough stock sold to guileless investors to pay Mr. Johnny Crapeau's expenses to England, where he made himself and scheme prominent enough to get considerable newspaper notoriety. After this, he and company escaped from the stage of public attention. Only 400 kilos of rubber were ever shipped, which fact is the best commentary as to what the company amounted to."

But where is General Jean?

RUBBER BOOTS FOR CITY WEAR.

"DOES anybody wear rubber boots nowadays? Why, we can't supply the demand," said the rubber dealer. "True, you don't meet large numbers of men walking down Broadway in rubber boots, but you would meet plenty of men wearing them in the subway.

"And stablemen wear them, and carriage washers; and men in fish markets. Rubber boots are worn in fact by many workers of one sort and another in the city.

"In the country rubber boots are worn by farmers and miners, by lumbermen, fishermen, and hunters, and there are many so worn.

"Coming back to the city, you will find rubber boots worn in large numbers by small children; every schoolboy wants a pair of rubber boots, and a great many get them; they have largely taken the place of the famous old red tops of years ago.

"Does anybody wear rubber boots in these days? Well! I should say yes with great vociferosity."—*New York Sun.*

INTERVIEWS IN THE NEW YORK TRADE.

I—WITH A CRUDE RUBBER MERCHANT.

"PRICES of rubber, while showing some firmness and a tendency to advance in the closing days of the month, were on an average much lower at the end of November than at the end of October. The average spot price for Upriver Pará was about 10 cents below the price of thirty days previous. From the high point to which prices soared sixty days ago there has been a decline of from 15 to 17 cents. The stocks of crude rubber in the market are not large, and the demand at the close of the month was more active than it has been in recent weeks.

"The causes for the decline in prices are not hard to determine. It is the general concensus of opinion of the best posted men that prices had been pushed too high for the general conditions of business and trade. In other words, the prices of rubber two months ago were out of line—higher than the manufacturer could afford to pay and do business at a profit. There was very little buying at the top prices, and such as was indulged in by the manufacturers was in cases of necessity. That the high prices were the result of speculation, or at least the movement of speculators, is a very prevalent opinion, and it is also the opinion that some of those engaged in the movement were found, when the break came, with considerable amounts of high priced rubber still on their hands. It is hardly probable that the prices which marked the closing days of September will again be reached, nor is it considered by the best judges of conditions that violent price fluctuations in the near future are probable.

"In the manufacturers' hands stocks are regarded as rather light, an inevitable sequence of high prices, and the inquiry at the close of the month was more active. The general conditions of trade do not, however, warrant the belief that there will be an extensive demand for rubber at high prices, or indeed at any price. While all the factories are running at about the usual activity for this period of the year, reports from salesmen are not entirely satisfactory. Many things contribute to render the outlook lacking in encouragement: The high prices of money, the disturbances of the Wall street market, the many strikes which have made idle concerns that are large consumers of rubber, and the open, pleasant weather that has prevailed during the fall.

"While it is true that business during October and November was better than for the same months last year, it was hardly so good as had been anticipated in view of the unusual activity during the spring and summer. Most of the factories are fairly loaded with spring orders, which insures steady occupation during the winter, but new orders are indicating a slight diminution. It is of course recognized that the last three months of the year are always the dullest in the year for the manufacturer, in the matter of sales. The dealer has purchased and received his fall and winter supplies, has probably ordered his spring goods, and is at the moment interested chiefly in disposing of his stock."

II—WITH A RUBBER MANUFACTURER.

"I AM a bear on the rubber market," said the head of one of the largest manufacturing concerns, "for the very good reason that I believe that goods cannot be profitably made from rubber any higher or even as high as it is at the present time. We have had in this country since 1899 such a tremendous wave of prosperity—or 'boom,' if you choose to call it such—that there has been demoralizing inflation and overproduction. We must get down to a reasonable basis, where money is made more slowly, before we reach the points of safety. The recent panic in Wall street has been a rich man's panic and will not affect, except collaterally, the rubber industry, but it will of course to a degree be felt. For instance, I look for a falling off next year in the demand for automobile tires. The automobile is essentially the rich man's device, and the present money panic will be felt. There will be some restriction felt in the vehicle solid tire trade, also, and while this may not be noticeable in the number of tires sold, it will be appreciable in the quality, the average cost being probably less.

"In other rubber goods I look for the same conservatism to a certain extent, and I believe that manufacturers will be inclined to figure the cost of goods very closely. For these reasons I do not look for higher priced crude rubber. High priced rubber makes high priced goods, and if the manufacturer cannot sell high priced goods he will not buy high priced rubber. I do not believe all of this talk about short crops and light stocks. There is no reason why the crop of rubber should be any shorter than the average unless there are floods, or low water or revolutions, or some other demoralizing cause. There is as much rubber to be gathered and there are as many gatherers, and high prices should have the effect of stimulating the production rather than retarding it.

"The recent high prices were made by speculators, and some of them made money at it and some of them are holding rubber they cannot sell for what they paid for it. The rubber manufacturer must calculate very closely now, or he will lose money rapidly. The business has been demoralized in the past by men who thought it was a 'bonanza' and rushed in without understanding it. In order to get business they undersold their rivals without counting closely enough, and they went to pieces. The history of the trade is strewn with such wrecks."

"How about the stocks of crude rubber in manufacturers' hands?"

"Some have four months' or three months' supply and some, I understand, have gone down to almost the point of exhaustion. Some manufacturers are conservative and only buy as they need the rubber, while others are speculative and buy far ahead when they believe a favorable opportunity is offered."

III—WITH A MANUFACTURER.

ANOTHER manufacturer, who also is the head of a large company, was inclined to be pessimistic. "The competition is so great," said he, "and the cost of material and labor so high, that I do not think the outlook is at all alluring. The 10 per cent. advance that was announced by the principal manufacturers about sixty days ago has practically been rescinded, and while there has been no official notification to that effect, every one of them, our firm among the number, is selling on the old basis. This indicates that under present conditions high prices for rubber goods cannot be maintained, in spite of high prices for rubber and duck and other material.

"These high prices are cutting into the profits, and I believe it will require very careful management for some of the weaker brethren to pull through. The factory expenses of our plant will this year be about $80,000 more than last year, although the volume of business is very little increased. Business in every direction has been expanding too rapidly, and there must be a readjustment before things will be safe. At the present time business is dull, very dull as far as new orders are concerned, and I do not look for much increase before March. As far as the stocks of crude rubber are concerned in importers' hands, I believe they are plenty, fully up to the average. In the manufacturers' hands they are light, but I think purchases will be sparingly made for the next six months. I do not think prices will fluctuate very much, either up or down, for a good while to come."

IV—WITH A RUBBER MERCHANT.

"FROM the first of November until about the twentieth the prices of spot Upriver Pará declined on an average 10 cents per pound. In the last week of the month there was a firming up and higher prices prevailed, the advance being something like 2 or 3 cents. Stocks in manufacturers' hands are light, particularly in coarse Pará. This has been brought about of course by the high prices that have prevailed, and the activity of the factories during the summer. Now the manufacturers must buy, and within the past few days the inquiry for rubber has been very active. This is the dull season for the factories and for selling rubber, but the shortness of the stocks is stimulating buying. Reports concerning the yield of rubber are very conflicting, but I do not believe it will quite reach the average. At present the supply of crude rubber in all markets is light, and whatever lots are offered are taken up rapidly. There seem to be just at the present time buyers for more rubber than there is for sale. An accident to a ship bearing a large amount, or any delay in arrival, would make the demand very acute."

THE TEXTILE GOODS MARKET.

DECEMBER finds many of the consumers of cotton duck and sheetings still in a waiting attitude. It was a most fortunate piece of foresightedness which the rubber trade displayed a year ago when they contracted for a much larger supply of duck than they could possibly use, for the material was bought at 3 cents per pound less than it can be bought for now, and many of the mills are still using these goods, instead of having to come into the market and pay the higher price. The cotton duck mills will be compelled to run on old contracts until the middle of January before they are completed. Meanwhile the rubber hose and belting manufacturers are considering their future requirements, and while some of them have already made contracts for the next year, others are negotiating. All consumers of duck have been waiting for the cotton market to assume a settled condition before they attempted to provide for the future, but after deferring this matter two months they find themselves in no better position than before. Engagements that have been made for the next season have been on a basis fully 3 cents per pound higher than last year; that is, instead of paying 17½ cents per pound for duck, they are paying 20½ cents. But instead of cotton being 8 cents per pound as it was a year ago, it is now 11.30 cents. It will therefore be seen that the duck mills are not getting a parity price for their goods. The same conditions apply to the market for sheetings used by the rubber trade.

It is the general opinion that the rubber consumers of cotton textiles will not defer their contracts longer, as it is pretty well understood that the price of raw cotton will remain where it is if it does not go higher during the next few months. One thing certain is that the duck mills are buying cotton at its current price. One seller in the local market informed THE INDIA RUBBER WORLD representative that his house had paid its mills during the present month $75,000 in excess of the amount paid them last December, with which to meet the advanced price of cotton. The reactionary tendency in contract cotton, amounting to a loss during the past week of 22@32 points in New York, Liverpool, and New Orleans, has had but little effect upon the spot cotton market. Following are the prices of cotton middling upland spots at the ports of New York, New Orleans, and Liverpool:

	New York.	New Orleans.	Liverpool.
November 7	11.05 c.	10 7/16 c.	5.94*d.*
November 14	11.50 c.	11.00 c.	6.14*d.*
November 21	11.30 c.	10 3/4 c.	6.02*d.*
November 28	11.30 c.	10 5/16 c.	6.04*d.*

Belting manufacturers have bought considerable duck during the past month, and although prices have been a restricting factor these concerns are coming forward more numerously, and December will doubtless see the greater part of them covered with duck for the season.

The felt mills have secured a fair amount of business from the rubber boot makers, but higher prices have had the effect to cause consumers to go slow, and confine their purchases to actual necessities. The wool market is exceedingly strong, with little in sight to encourage manufacturers to hope for lower values this season. The seaboard dealers have paid high prices for their wools and are evidently determined to hold them until users come to their terms.

As has been stated before in these pages, contracts with the duck manufacturers are this year made on an entirely different basis from those last year, in that the mills ask consumers to stipulate more closely the amount of goods that are going to take. In other words, the rubber people are not allowed so much latitute as before. Canadian rubber manufacturers are still running on the duck they bought a year ago, having at that time bought unusually heavy in anticipation of higher prices as a result of the threatened 25 per cent. duty on ducks entering the Dominion. It is believed, however, that before the end of the present year the greater part if not all of the rubber manufacturers both in the States and in Canada will have arranged for their next year's supply.

The rubber footwear trade have been taking good quantities of sheeting during the past month, and the present week has noted considerable interest. Prices have advanced about ¼c. per yard during the month, and sellers are standing firmly on these prices.

PRICES CURRENT FOR SHEETINGS FOR THE RUBBER TRADE.

	Pick.	Yds. to Lb.	
36″ Household Favorite,	56x60,	4.00	5½ cents.
40″ Household Favorite,	56x60,	3 60	6 cents.
36″ Henrietta, L. L.,	48x52,	4 00	5¼ cents.
39″ Henrietta,	68x72,	4.75 (net)	5 cents.
38½″ Henrietta,	64x64,	5.15	4⅜ cents.
40″ Henrietta,	48x40,	2.85 (part waste)	6½ cents.
36″ Florence C.,	44x44,	6.15	4 cents.
40″ Majestic C. C.,	48x48,	2.50	7½ cents.
40″ Majestic B. B. B.,	do	2.70	7 cents.
40″ Majestic B. B.,	do	2.85	6½ cents.
40″ Elcaney,	do	3.60	5¾ cents.
36″ India,	do	3.00	6¼ cents.

Sheetings.

40″ Highgate...5¾c.
40″ Hightown...6 c.
40″ Hobart.....6½c.
40″ Kingstons...7½c.
39″ Stonyhurst...5¼c.
39″ Sorosis.....5 c.
40″ Seefeld.....8 c.
40″ Selkirk.....7½c.
40″ Sellew.....7¼c.
48″ Mohawk....10 c.
40″ Marcus.....5½c.
40″ Mallory.....5 c.
36″ Capstans....4 c.

Osnaburgs.

40″ Iroquois.....9 c.
40″ Shamrock...9 c.

Ducks.

40″ 7 oz. Cranford. ... 8¼c.
40″ 8 oz. Charters..... 8¾c.
40″ 10 oz. Carew. 11 c.
40″ 11 oz. Carita. 12 c.

THE second edition of Catalogue No. 115, the condensed general catalogue of the B. F. Sturtevant Co. (Jamaica Plain, Massachusetts), has gone to press and will very soon be ready for distribution. A few pages in this revised edition have been devoted to Factory and Industrial Railway Equipments, a new departure of this enterprising concern. The outgrowth of the success attained in equipping their new plant at Hyde Park was the manufacture of this new line of products.

WHILE the leading tire manufacturers expect to be well represented at the large automobile shows in New York and Chicago this winter, they will not make exhibits at the numerous local shows that have been or may be organized.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The Haskell Golf Ball Co. have won their suit against A. G. Spalding & Brothers in the United States circuit court in the southern district of New York, the defendants having confessed judgment on $10,000 for the infringement of patents owned by the Haskell company. This suit was one of several brought by the Haskell company against manufacturers of golf balls, for infringement of patents, and the result of similar suits which are yet unsettled is said to promise favorably for the plaintiffs. The Haskell company own the patents for the Haskell ball, which is a wound rubber cored ball, the invention of Mr. Coburn Haskell and Mr. Bertram G. Work, vice president of The B. F. Goodrich Co. of this city, and the great popularity of this ball among golfers has resulted in other manufacturers trying to imitate it. The Spalding company made a ball of a similar nature, and when brought to task about it by the Haskell company claimed that as base balls in which some rubber thread is used were made prior to the manufacture of the Haskell ball, the latter is no novelty. As the Spalding company have long been noted as the makers of base balls, they felt secure in their claims, and fought the suit brought by the Haskell company. They have evidently thought better of it since, as they have not only confessed judgment for $10,000 and agreed to pay the costs of the suit, but have entered into an agreement with the Haskell company for a license to make the Haskell ball. Mr. B. G. Work, vice president of the Haskell company, states that the result of the suit is very satisfactory to them, as the confession of judgment amounts to a vindication of the claims of the company. Mr. Work also stated that there is nothing new to say in regard to the patent infringement suits of the Haskell company against The Kempshall Manufacturing Co.

* * *

THE plant of the India Rubber Co., or rather that portion which was not destroyed by the fire (in March, 1903) which caused the removal of the company from this city, has been purchased by a company of Pittsburgh and Cleveland capitalists, formed for the manufacture of cutlery. The plant was purchased for about $50,000, including the office building. The deal closes the history of one of Akron's most successful enterprises, as everything connected with the former company has been removed to the plant of the new company, The India Rubber Co. of New Brunswick, New Jersey.

* * *

THE plant of the Lyon Rubber Co., which went into the hands of a receiver on October 6, is again in operation. Receiver Kling disposed of the machinery to Ossian G. Lyon, who was vice president and manager of the company, for $669.98, and the raw material and finished goods to David G. Armstrong, who was its secretary and treasurer. These gentlemen will continue the business, under the name O. G. Lyon, making rubber gloves, finger cots, and other dipped goods. Receiver Kling has not yet made a report, owing to the accounts which remain to be collected, but is of the opinion that the creditors will receive 50 per cent. of their claims.

* * *

THE night watchman at the plant of the Pure Gum Specialty Co. (Barberton) prevented the plant from being robbed on the night of November 20. He was attracted by a noise in the rear of the plant and got to the scene in time to prevent two men from entering. One of the men, in his hasty retreat, dropped his hat. The next day the Barberton police saw Frank Lee wearing a straw hat, and placed him under arrest. The hat found by the watchman was identified as the one worn by Lee prior to the robbery, and he is held pending a trial for attempted burglary.

* * *

AFTER a trial lasting several days a jury in the court of common pleas returned a verdict against the Diamond Rubber Co. in the suit of Addison McClurg, who sued the company for $20,000 damages, alleged to have been sustained by reason of the negligence of the defendant company. McClurg lost a hand in one of the machines at the factory of the company some time ago. He operated a calender, and in his petition, alleged that the rolls of the calender were not properly guarded. McClurg was awarded $2,100 by the jury. The case may be carried to a higher court.

* * *

AN option has been taken by Pittsburgh parties on the plant of the People's Hard Rubber Co., which has been standing idle since the failure of that company, and it is stated that a company will be formed for the manufacture of street railway specialties. It is one of the best rubber plants in Akron, but it was dismantled soon after the purchase of the assets of the company by New York interests, and has not been used since.

* * *

JOHN F. IVES, the inventor of an automobile tire, has filed a suit in the court of common pleas at Akron, against the Diamond Rubber Co., for damages in the sum of $5563, for the alleged violation of contract. The plaintiff alleges that he entered into a contract with the Diamond company on April 2, 1902, to work for them at a fixed salary, and to give the company the exclusive right to manufacture and sell his tire. He alleges that the company has refused to manufacture the tire under his patent, though retaining the exclusive right to do so until April 2, 1903. By this action, the plaintiff says, he was restrained from manufacturing the tire on his own account which he could have done with good profit. He states that the company agreed to pay him not less than $1000 per year in quarterly installments, and paid but two installments.

* * *

WHEN a good sized convention is to be held in Akron, as has happened several times within the past year or two, the circulars descriptive of the city, sent out in abundance by the local committees, invariably call attention to the importance of the rubber industry here, and delegates are promised a trip through the principal factories as one of the events of the visit. This promise is seldom made good, however, on account of the unwillingness of the rubber manufacturers to open their works freely to inspection. But the disappointment of the delegates is mitigated in part by the distribution of rubber souvenirs of some sort. In former years delegates could expect to secure souvenirs emblematic of Akron's potteries and clay product companies, but these are never thought of now. Just now the most popular souvenir of the "Rubber City" is a miniature hot water bottle holding about a quarter pint, which really is a useful article. It can be used as a face bottle, and delegates who are fortunate enough to secure one of them count themselves favored. This souvenir first came into popularity upon the occasion of the second state campaign opening of the Republican party here two years ago, when the local press committee, in search of souvenirs, hit upon the idea of miniature water bottles, and secured a supply of them for the visiting newspaper men. The visitors displayed their souvenirs to men high in the councils of the party who were present, and they in turn besieged the local press headquarters in quest of the neat little souvenir, and since that time the miniature bottle has been a great favorite. At the recent conclave of the Knights

Templars of Ohio in Cleveland, Akron Commandery, No. 25, took 2500 of these souvenirs to Cleveland, and during a reception gave each visiting lady a bottle as a souvenir of the "Rubber City." They made the hit of the convention, and every delegate wanted one of them. Many other rubber novelties are used. Fountain pens, made in Akron, are always favorites, and anything else in the rubber line is always eagerly sought. Thus everything tends toward a change from the "Tip Top City of the Western Reserve" to the "Rubber City," and no Akron citizen will object to the change, for through her rubber factories 5000 men and women, boys and girls are given employment, and one-third of Akron's population is clothed and fed.

* * *

A LOCAL rubber man, in discussing the large amounts of money which are tied up in Akron rubber concerns, said: "It is a fact of which most people are unaware, that rubber companies spend large amounts every year in experiments. Ambitious inventors who believe they have at last acquired a patent which will fill a long felt want secure an audience with the proper official of a rubber company, and if they are successful in satisfying him that their inventions are practicable, he will spend money liberally in getting them in shape to be put on the market. Nine times out of ten, when the article is a good one and the expert rubber men get to work upon it, they produce an article better than the inventor ever dreamed of, and the company foots the bill. Many times the article does not 'pan out' as expected, and the rubber company finds that it has a large amount to be charged up to profit and loss, which was expended in time, material, and labor in an endeavor to perfect an invention. In a big company thousands of dollars go to waste in this manner every year. Besides, the companies are constantly experimenting with new compounds, secret processes, etc., which eat up large sums in the course of a year that would materially increase the dividends if they could be used for that purpose. The rubber business is a great business, but because of the fact that it is practically in its infancy, and new uses for rubber are being found every day, it takes lots of money to conduct it successfully."

* * *

MR. WILL CHRISTY, president of the Firestone Tire and Rubber Co., has created a sensation among street railway men by offering to build in Cleveland a street railway upon which he agrees to charge a two cent fare, or sell 13 tickets for a quarter. Mr. Christy has always been known as a conservative traction man, and one who maintained that a five cent fare was essential to the life of a street railway corporation. Mr. Christy is first a street railway man, and secondly a rubber man. Perhaps the fact that he has only recently become identified with the latter business accounts for his paying more attention to the traction business, with which he has been identified for many years, and in which business he has accumulated a considerable fortune. Mr. Christy is evidently in earnest in his offer to build a two cent fare road, but he refuses to tell of his plans at present. Mr. Christy is first vice president of the Northern Ohio Traction and Light Co., and until recently was president of the Southern Ohio Traction Co. He was one of the original stockholders of the People's Hard Rubber Co., but disposed of his stock before the failure of that company.

* * *

The election of Mr. Ohio C. Barber to the presidency of the United Boxboard and Paper Co., was not unexpected in Akron, where a large part of his business interests are located. Mr. Barber is one of the directors of the Diamond Rubber Co., and the factory of that company was formerly the plant of the Diamond Match Co., later removed to Barberton. Mr. Barber is said to be one of the largest stockholders of the Diamond Rubber Co., and he is also largely interested in many other large enterprises. The fact that the success of the strawboard trust was deemed dependent upon his accepting the presidency is particularly gratifying to his friends and business associates.

* * *

BOWLING is the latest game to be taken up by employés of some of the Akron rubber companies. A new team, called "The Rubbernecks," promises to be one of the best in the city, if the first game of a series bowled recently may be taken as a criterion. It won two out of three games rolled with the "Grands," the strongest team in the county. Joseph Dangel, superintendent of the plant of the American Hard Rubber Co., is a prominent member of the team. He is the inventor of a hard rubber ball, mention of which was made in a recent issue of THE INDIA RUBBER WORLD, and all the members of the team use this ball. Other members of the team are Edward Bullock, John Tillett, L. C. Ball, M. A. Germann, and Charles Blank, all employés of rubber companies.

* * *

THE Swinehart Clincher Tire Co. is the name of a new company recently organized in this city for the manufacture of solid vehicle and automobile tires, under patents owned by Mr. J. A. Swinehart, who was formerly vice president of the Firestone Tire and Rubber Co. Mr. Swinehart's patents are radical departures from those of other manufacturers, and especially is this noticeable in the vehicle tires, which he will place upon the market in a short time. The vehicle tire is fastened to the rims without the use of wires, and is called a clincher tire. The new tire fits into a specially prepared channel, doing away entirely with the use of wires. The automobile tire is also a clincher, and great things are claimed for it. At the present time the company are doing a great deal of experimenting with the tires, and are having them made at different factories in Akron. It is the intention ultimately to build a factory for the manufacture of these tires.

* * *

MR. ALEXANDER ADAMSON, owner of the Adamson machine works, in which many machines used in the rubber trade are made, is completing a handsome residence in the outskirts of Akron, which attests his love for country life. The house is hidden among the hills in a spot where street railways and other modern conveniences of everyday life are as yet unknown. It will be one of the most handsome homes in this section of the state.

Mr. James A. Braden, advertising manager of the Diamond Rubber Co. and a former well known newspaper man of Akron, has just published his second book, "Connecticut Boys in the Western Reserve." It is a companion story to his first book, "Far Past the Frontier," and was written before he accepted his present position. Mr. Braden has made a specialty of writing for juvenile readers.

The Diamond Rubber Co. are very proud of the record made by their tires in the recent endurance contest for automobiles from New York to Pittsburgh. It is stated that 12½ sets of Diamond tires used in that contest reached Pittsburgh after a contest such as had never been had before, at an average cost per car of 5⅛ mills per mile. Fifteen and one-half sets of Diamond tires were on the 34 cars that started from New York, and five sets of these tires finished the run without so much as a puncture, and one of these ran a number of miles on a railroad.

NEWS OF THE AMERICAN RUBBER TRADE.

THE HASKELL GOLF BALL SUITS.

ON November 6 A. G. Spalding & Brothers (New York) confessed judgment to the extent of $10,000 in an action brought against them by the Haskell Golf Ball Co. and The B. F. Goodrich Co. The case was brought in the United States circuit court for the southern district of New York and alleged infringement of patent. After taking testimony in the case and before final hearing, Spalding & Brothers surrendered, admitted the infringement, and agreed to pay the sum named as damages and the costs of the litigation. The suit was brought on the patent obtained April 11, 1899, by B. G. Work and Coburn Haskell, for a golf ball composed of a rubber center and a guttapercha casing. The Spalding firm were making and selling a ball known as the "Wizard," but its construction was practically identical with the Haskell ball. Subsequent to the confession of judgment the owners of the patent granted a license to the Spaldings to manufacture upon the royalty basis and that firm will continue to put its product on the market, under the label used hitherto.

The decree of the court is of especial interest in that it declares the validity of the patent, the second paragraph stating, after the granting of the papers had been recited:

That the said B. G. Work and Coburn Haskell were the first, true, original, and joint inventors of the invention described in said letters patent, and claimed in the claims thereof, and that the said letters patent are good and valid.

A perpetual injunction was also entered against Spalding from making, using or selling any golf balls made under this patent without license from the patentee. The decree is signed by Judge Lacombe.

Quite a number of other suits similar to the one against Spalding & Brothers have been brought by the same firms. In the suit against Patrick Brothers, dealers, of New York, it is understood that a similar decree has been agreed upon to the one quoted above. In this case the damages have not been settled, but the business that has been done is being determined by accountants. Another suit is against The Kempshall Manufacturing Co., of Arlington, New Jersey. In this suit testimony is still being taken. There is also a suit against the Swift Golf Ball Co., of New York, in which testimony is being taken. Suit has been recently filed against the Worthington Manufacturing Co., of Elyria, Ohio, manufacturing a ball known as the "Standard," which the Haskell company claims is an infringement. [Further details regarding the Haskell golf ball litigation appeared in THE INDIA RUBBER WORLD, of August, 1902 (page 366), and December, 1902 (page 102)].

AMERICAN TUBING AND WEBBING CO.

THE receivers of the American Tubing and Webbing Co. (Providence, Rhode Island) announce for public sale on December 1 (the date of this issue of THE INDIA RUBBER WORLD) all the property of the said corporation other than cash and accounts receivable. This course has been rendered necessary by the embarrassment of the company growing out of the failure of Dresser & Co., commission merchants of New York, as already detailed in these pages. The factory is offered for sale as a going concern, with the good will of the business. The property includes about 37,000 square feet of land in Providence, with a five story brick building 248 × 54 feet subject to a mortgage for $25,000); a very complete equipment for the manufacture of flexible tubing for gas stoves, drop lights, etc., elastic webbing for suspenders, garters, and the like, of both silk and cotton weaves, hat elastics, elastic braids, and all, similar products. There are mentioned 150 looms for webbing, 578 braiders and twisters, and accessory appliances; also all merchandise in stock, manufactured or raw.

The American Tubing and Webbing Co. was incorporated May 31, 1889, as the Rhode Island Knitting Co., the name being changed January 31, 1890. The first factory, for various elastics, was located on Acorn street, Providence. In 1896 the factory was removed to Gordon street, into a new building of its own, which is now offered for sale. In 1901 there was merged with the business the Narragansett Webbing Co., of Newport (incorporated January 6, 1897) and the National Fabric Co., of Providence. The Narragansett company was organized by Daniel LeRoy Dresser, who had come into possession of the plant of the E. Read Goodridge Manufacturing Co., of Newport, as a creditor of that concern, and upon the amalgamation with the American Tubing and Webbing Co., he became a large shareholder in the latter, which was capitalized at $276,000.

The American Tubing and Webbing Co. were understood to be doing a profitable business up to the time of Mr. Dresser's failure, growing out of his connection with the United States Shipbuilding Co. Receivers were appointed in March last, since which time the factory was continued in operation, but on a reduced scale. On November 2 a petition of the receivers for an order of sale was granted by the supreme court, and on November 9 the plant was closed, since which time the officers of the company have devoted their attention to putting the business and property in shape for sale.

GOSHEN RUBBER WORKS (GOSHEN, INDIANA).

AT the recent annual meeting of the shareholders it was voted to increase the capital of the company from $100,000 to $200,000, and to add new machinery at once. The year's business was reported to have made a good showing. The board of directors was reëlected, with the addition of Frederick Barber, superintendent of the factory. Among the shareholders are several citizens of Indianapolis, including Governor Durbin.

FRANKENBURG'S CANADIAN BRANCH.

AS foreshadowed in these pages, the important English house of Frankenburg (Manchester) have established a branch factory in Canada for supplying mackintoshes and raincoats direct to their trade in the Dominion, though at present the proofing of cloth will be done at another Canadian factory. The style of the house in Montreal is Isidor Frankenburg, Sons & Co., Limited, and the location, No. 1883 Notre Dame street. The factory will supply the wholesale trade only. Their Canadian manager is E. L. Rosenthal, who, in 1876, entered upon a seven years' apprenticeship to the Messrs. Frankenburg, in Manchester. Later Mr. Rosenthal became a waterproof manufacturer on his own account in Canada, since which time he has become thoroughly acquainted with the requirements of the trade in that country. ——The parent house of Frankenburg dates from 1876. Originally the manufacture of leather goods was combined with that of waterproof goods. More recently this feature has been replaced with electric wires and cables. In 1900 the business was transformed into a limited liability company, I. Frankenburg, Limited, composed of Mr. Isidor Frankenburg, J. P., and his sons, and capitalized at £250,000, in £10 shares, one half preferred and one half ordinary. A branch for the manufac-

ture of waterproofs has been maintained for some time past in Hamburg, Germany.

RUBBER INDUSTRY IN CONNECTICUT.

FIFTEEN rubber factories in Connecticut, large and small, now report to the state bureau of labor statistics, from the latest published annual report of which the following details are compiled, for the two fiscal years (ending November 30) 1901 and 1902. It will be seen that a marked increase is to be noted for each item in the list, showing 1902 to have been a busy and profitable year for the industry:

	1901.	1902.
Factories reporting	15	15
Average number employés	3754	4374
Average number days employment	285.6	296.8
Amount wages paid	$1,766,556.67	$2,374,290.19
Average yearly earnings	$470.58	$517.10
Average daily earnings	$1.65	$1.74
Gross value of products	$10,941,714 59	$15,955,280.82
Percentage labor in cost	16.1	13.6

There is no means of determining just which factories have contributed the above information. In connection with the table it may be of interest to note that the last United States census (for the year ended June 30, 1900) reported 27 rubber factories in Connecticut; average number of persons employed, 7423; total wages for the year, $3,122,185; average yearly earnings of employés, $420.61; gross value of products, $20,245,278.

BOSTON WOVEN HOSE AND RUBBER CO.

THE following financial statement has been filed with the commissioner of corporations of Massachusetts, dated September 1, 1903:

ASSETS.		LIABILITIES.	
Real estate	$ 185,500	Capital	$1,200,000
Machinery	264.499	Accounts payable	291,500
Merchandise	483,751	Surplus	34,465
Cash and debts receivable	663,764	Profit and Loss surplus	71,550
Patent rights	1	Total	$1,597,515
Total	$1,597,515		

The merchandise inventory shows an increase over last year of $3,422 and the cash and receivables an increase of $137,684. The patent rights account has been reduced from $10,000, and the real estate and machinery accounts figure at $115,301 less than last year.

RAINPROOF COATS IN CANADA.

"NEVER in the history of the clothing trade in Canada," says the Montreal *Clothier and Haberdasher*, "was there such a volume of trade done in rainproof garments for men as this fall." It is pointed out that, while the trade became less active with the beginning of winter, Montreal manufacturers are making preparations for a big business for next spring, their representatives already submitting a great variety of clothes to the retail trade. At the same time conditions in the mackintosh trade are reported good.

NEW CATALOGUE OF MARINE MACHINERY.

THE Marine Iron Works (Station A, Chicago, Illinois) have just issued a new illustrated catalogue of their product, that will be sent free on request. This company makes an exclusive specialty of designing and building modern marine machinery (steam only) suitable for vessels ranging from 30 to 160 feet in length, and within their range of sizes the line is very complete, covering paddle wheel as well as screw propeller machinery, condensing or non condensing, for either salt or fresh water, as may be required. The large line of marine boilers which they build includes the Roberts Safety Water Tube, as also the better class of shell marine boilers, and for either hard coal, soft coal or wood fuel as desired. Their new catalogue illustrates and mentions 35 different sizes and types of screw propeller engines and 36 different paddle wheel engines, all of modern type. Fifty different sizes and types of marine boilers are listed.

FISK RUBBER CO. (CHICOPEE FALLS, MASS.).

THE assignee, A. N. Mayo, has made a statement of the condition of this company on October 15, showing assets of $232,587.09 and liabilities of $237,480.96. At last accounts nearly all the creditors had assented to the assignment, and the opinion is expressed that it will be possible, in view of the prospects of the company's business, to pay the claims in full.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	Common. Sales.	Common. High.	Common. Low.	Preferred. Sales.	Preferred. High.	Preferred. Low.
Week ending Oct. 24	100	10⅛	8⅛	110	36½	36⅛
Week ending Oct. 31	310	9⅞	9⅛	—	—	—
Week ending Nov. 7	700	9½	9	210	38	38
Week ending Nov. 14	610	8	8	100	36	36
Week ending Nov. 21	430	9	8⅛	260	36⅛	36⅛
Week ending Nov. 28	250	9	9	400	36½	35⅞

RANGE FOR TWO YEARS.

	Common.		Preferred.	
1902	High 19⅝	Low 14	High 64	Low 49½
1903	19⅛	7	58	30¼

RUBBER Goods Manufacturing Co.:

DATES.	Common. Sales.	Common. High.	Common. Low.	Preferred. Sales.	Preferred. High	Preferred. Low.
Week ending Oct. 24	1,487	14½	14	37	67⅞	67⅛
Week ending Oct. 31	1,730	14¾	14	400	70	68
Week ending Nov. 7	910	14¾	14	448	68	67⅛
Week ending Nov. 14	930	14	13½	550	70	68⅛
Week ending Nov. 21	510	14⅛	13	1,200	70	69
Week ending Nov. 28	200	14⅝	14⅛	365	70	67

RANGE FOR TWO YEARS.

	Common.		Preferred.	
1902	High 25⅛	Low 17¼	High 74	Low 63
1903	30	12	84½	60

RUBBER GOODS MANUFACTURING CO.

AT a meeting of the directors held in New York on November 25, the nineteenth regular quarterly dividend of 1¾ per cent. on the preferred shares of the company was declared, payable out of current earnings, on December 15, to holders of record of December 5, 1903. Checks will be mailed to registered addresses.

A NEW RUBBER PROOFING PLANT.

THE Mercury Rubber Co., the incorporation of which was reported in the last INDIA RUBBER WORLD, announce that they have fitted up a plant at Elizabeth, New Jersey, for proofing cloth and the manufacture of rubber specialties, such as hoofs, soles, hoof pads, and mold work generally. The premises are those occupied some years ago by the late Pacific Rubber Co. The factory is in charge of Charles F. Hart, who has had long experience in the trade. The office of the company is at No. 35 Warren street, New York. I. Markowitz is president of the company and Mr. Hart secretary.

NEW INCORPORATIONS.

ROYAL Rubber Works Co., Inc. (Hartford, Connecticut), November 2, 1903, under Connecticut laws; capital, $4000. Thomas P. Govan, president; Joseph A. Holstein, manager. Wholesale jobbers in rubber goods of all kinds, with hospital supplies a specialty.

=The Western Rubber Co. (Denver, Colorado), September 15, 1903, under Colorado laws; capital, $50,000. Frank R. Marsh, president; Frank G. Peck (mine owner), vice president; Myron

G. Brownell (publisher *The Colorado Real Estate News*) secretary and treasurer. Premises have been leased at No. 1633 Blake street, Denver, for a factory for extracting rubber from a plant said to grow wild in profusion over great areas in Colorado and adjoining states. The company advise THE INDIA RUBBER WORLD that they have nothing to say for publication as yet, though local newspapers mention that samples of the new rubber have been on exhibition.

[A press despatch from Buena Vista, Colorado, of November 16, says: "The first carload of rubber weed for the Western Rubber company of Denver was shipped this morning. Frank Newitt, the local representative of the Denver concern, reports that 28,000 pounds of rubber root were gathered here last week. Mr. Newitt says that the supply of the weed immediately surrounding Buena Vista could not be gathered by 1000 men in a year's work. Buena Vista is most favorably located as a central point from which to gather the rubber weed, the valley and hills adjoining being literally covered with it."]

=Stewart & Houlihan (New York), November 18, 1903, under New York laws, to manufacture rubber and metal stamps; capital, $20,000. Directors: G. T. Houlihan, M. A. Stewart, and A. L. Houlihan, all of New York.

TRADE NEWS NOTES.

RELATIVE to a report that The B. F. Goodrich Co. would engage in the making of hard rubber goods, President George T. Perkins, of that company, is quoted by an Akron newspaper as saying: "We use some hard rubber in the manufacture of some of our specialties, but as for establishing a hard rubber department, we have not thought of that. The hard and soft rubber business are as separate as iron and rubber business. We shall continue to buy what hard rubber we need."

=In a letter to Morris & Co. (Yardville, New Jersey), in regard to their spring bottom baskets, the Davol Rubber Co. (Providence, R. I.) wrote recently: "We are using your Duck Baskets for the moving of our product in different states of completion, from one department to another, and find them admirably suited to our purpose."

=Mr. Alexander M. Paull, general manager of the Boston Woven Hose and Rubber Co., lately has made a three weeks' tour of the country, visiting the company's salesmen in all the leading cities. Mr. E. H. Huxley, manager of the Chicago branch, has returned to business after eight weeks' illness.

=The "Alice" mill of the Woonsocket Rubber Co. (Woonsocket, Rhode Island) is reported to have orders in hand for several months ahead, and is being run full time with a full force.

=The Brass Department of the Boston Woven Hose and Rubber Co. have put on the market a cast brass garden hose coupling, packed one dozen in a paper box and one dozen boxes in a wooden case. This is in response to a demand from the jobbers who object to receiving couplings in bulky packages which must be counted over several times. The "Bull Dog" coupling so called, is all the name implies for holding and in neat packages it is doubly attractive.

=Work is fast nearing completion upon the new power plant of the B. F. Sturtevant Co. at Hyde Park, Massachusetts. This bids fair to be one of the most complete plants of its kind in the country, special care having been taken in connection with every detail to secure the highest efficiency and the most modern equipment. The plant will comprise four water tube boilers, with stokers supplied by Sturtevant force draft, an economizer with Sturtevant induced draft, and a complete outfit of Sturtevant generating sets, together with condenser, air compressor, etc. The Sturtevant exhaust head is used for separating the water and oil from the exhaust steam.

=The new rubber shoe factory of Terrence McCarty, at Bristol, Rhode Island, began operation on November 16, with a ticket of 500 pairs per day, which number it is hoped to increase shortly.

=The Grand Rapids Felt Boot Co. (Grand Rapids, Michigan) have renewed for three years their contract with H. B. Meyers, of E. S. Woodbury & Co. (Boston) to act as their New England representative.

=The Consolidated Rubber Tires Co.'s 4 per cent. bonds, which had not been traded in for a long time, sold in New York on November 27 at 10—a gain of 3 points over the previous open sale. Several lots of bonds, amounting to $13,000, are reported to have been quietly purchased on November 23 and 24, at 10. The stocks were favorably influenced by the advance in bonds, the bid and asked prices being quoted substantially higher, though no trades were reported.

=Shipments are already being made on fruitjar rings for next season's trade. In one week this month two car loads left the factory of the Boston Woven Hose and Rubber Co. When it is considered that a car holds approximately 5,000,000 rings, the question arises, what do people do with so many of them?

=The office of the general secretary-treasurer of the Amalgamated Rubber Workers' Union of America has been removed from Boston to No. 52 Conant street, Concord Junction, Massachusetts.

=The State election in Rhode Island on November 3 resulted in the reëlection of Governor Garvin by a majority of 1587 over Colonel Samuel P. Colt, who had accepted the nomination of his party against his wish. Last year Governor Garvin's majority over the Republican nominee was 7738.

=Hammill & Gillespie, Nos. 240-242 Front street, New York, have been appointed selling agents for The Stamford Rubber Supply Co. (Stamford, Connecticut.)

=Recent reports to the effect that suit had been filed by the G & J Tire Co. (Indianapolis, Indiana) against the American representatives of the manufacturers of the "Continental" and Michelin tires, for infringement of their "Clincher" tire patents, appear to be unfounded. As already intimated in THE INDIA RUBBER WORLD, there is a possibility that the two foreign firms, who are undertaking to establish an American trade, may be licensed by the Rubber Goods Manufacturing Co.—who control the G & J Tire Co.—to sell tires in this country involving the clincher principle.

=The common and preferred stocks of the American Bicycle Co. have from the New York Stock Exchange list. The amount of the outstanding shares is now very small, owing to the deposits made under the reorganization plan which resulted in the transfer of the business to the Pope Manufacturing Co. There has been no trading in these shares for some months.

=The factory of the Easthampton Rubber Thread Co. (Easthampton, Massachusetts) has been wired for electric lighting, and the steam power will be increased sufficiently to operate a dynamo.

=The Hon. George W. Crouse, formerly heavily interested in The B. F. Goodrich and Whitman & Barnes rubber companies, has returned from a trip of several months abroad. One of his first acts upon reaching Akron was to apply for a discharge from bankruptcy in the United States district court in Cleveland.

=The suit of Mattie Vanderhoof against the Diamond Rubber Co. has been transferred to the United States circuit court for the northern district of Ohio, at the request of the defendant. Miss Vanderhoof is suing for damages alleged to have been sustained by her in slipping on an icy platform in front of one of the factory buildings.

=George S. Miller has resigned as president, treasurer and general manager of the New England Rubber Shoe Co. (Boston), to take charge of the Chicago house of Edward R. Rice, selling agent for the Joseph Banigan Rubber Co. On the evening of November 16 he gave a dinner to the selling staff of the company at the Boston Yacht Club. Edward B. Swett, who has been assistant to Mr. Miller, has been elected treasurer and general manager of the company. In Chicago Mr. Miller succeeds J. D. McDonald, who on his retirement from the house was presented by the salesmen with a handsome gold headed cane of solid ebony, inscribed "From the Banigan Boys, 1903."

=The annual auction of rubber boots and shoes at Montreal, at the salesrooms of Benning & Barsalou, realized about $50,000, at prices 10 to 20 per cent. higher than last year.

=Mr. A. H. Marks, of the Diamond Rubber Co. (Akron, Ohio) is in Liverpool, in connection with the business of the Northwestern Rubber Co., Limited, of which he is president.

NEW TRADE PUBLICATIONS.

THE Northwestern Rubber Co., Limited (Liverpool) issue a handsome booklet entitled "Reclaimed Rubber," in which is given in condensed form considerable information regarding rubber reclaiming methods and suggestions for the use of reclaimed rubber in the manufacture of goods. The company control the process patented about six years ago by Mr. A. H. Marks, which consists in treating ground rubber scrap with a dilute alkali solution at a comparatively high temperature, then washing, drying, and sheeting. A number of illustrations in the pamphlet show the mechanical equipment of the company's works, together with interior views of their offices. The works are described as covering sixteen acres. The directors of the company are Arthur H. Marks (president), William Alexander Smith (vice president and treasurer), W. B. Hardy, O. C. Barber, H. G. Wright, Dr. Joseph Torrey (technical manager), and Ernest E. Buckleton (general manager and secretary). [6″×9⅜″. 16 pages.]

THE GUTTA PERCHA AND RUBBER MANUFACTURING CO. OF TORONTO, LIMITED, issue an illustrated priced catalogue of Yachting, Tennis, Lacrosse, and Vacation Shoes, for the season of 1904, showing an attractive line of goods. [3⅜″×6⅛″. 12 pages.]

PHIL. PENIN GUMMIWAAREN-FABRIK ACTIENGESELLSCHAFT (Leipzig) issue a booklet in connection with their twenty-fifth anniversary, giving details of the growth of their business and views of their former and present factories. [5¾″×8½″. 10 pages.]

AT a meeting of shareholders of Isidor Frankenburg, Limited, at Manchester, England, on October 26, it was resolved, owing to the sons of the governing director now taking a great interest in the business, and being large shareholders to identify them with the name of the company, and, therefore, to alter the name of the company to I. Frankenburg & Sons, Limited, to date from November 16, 1903. This alteration will not involve any change in the directorate or management of the business.

REVIEW OF THE CRUDE RUBBER MARKET.

THE condition of the market has been one of uncertainty and constant fluctuation since the culmination, two months ago, of the exceptional advance in prices. As is always the case, that sudden rise—to a figure which practically prohibited buying—was followed by an equally sudden decline, though not to the old level. The market has since been in a position of seeking a normal basis. The advance at the beginning of September, under what might be called panicky conditions, of course went for a moment higher than was justified by any conditions of supply and demand. Similarly, the reaction may have carried prices to a point lower than those conditions justified. Whatever the cause of these changes, the effect is to render consumers uncertain as to the best course to pursue, and to unsettle prices of manufactured products and the sale of them.

It is ever easy to revive talk of "speculation" as the cause of market changes. That is a word capable of many applications, since all buying and selling involves speculation. The manufacturer who, fearing a rise in the market, lays in a supply of rubber beyond his current needs, engages in speculation. If rubber should advance, he has an advantage over competitors who postpone buying until actually in need of rubber; if there should be a decline, the advantage will be on the side of the competitors. The crude rubber merchant must take long chances in his business, which is more speculative than many other branches of buying and selling, because of greater risks involved.

But in the sense in which speculative manipulation of the market is usually meant—the securing control of all available stocks and compelling manufacturers to pay exorbitantly for them—it is safe to assert that crude rubber prices are seldom made in this way, and certainly not for any length of time. Stocks of rubber of late have been very low, and the demand for rubber active, and in the natural order of things high prices would result, just as turkeys cost more at the Thanksgiving season than at times when the demand is less general. Naturally the holders of stocks of rubber at such a time ask more and obtain more than under other circumstances, and it would not be surprising if, somewhere, the asking price should be put unreasonably high, but the fact that with the first new arrivals the prices decline is proof that supplies as a whole are not under control by any single or central influence.

It must be remembered, too, that speculative movements in crude rubber may have for their object "bearing" prices as well as "bulling" them. Different views as to the future of the market are held by different merchants at any given time, one party figuring on a decline and the other on an advance, and making their future plans accordingly. If there was any concerted speculative action, all the merchants would be found on one side of the market. However, every member of the trade is entitled to his own opinion, and that all sides may have a hearing, THE INDIA RUBBER WORLD this month presents on another page a number of interviews with manufacturers and crude rubber merchants, including expressions on other points than whether rubber prices have been controlled of late by manipulation.

The rubber factories are perhaps less busy, now that the end of the year is near. But this does not imply dullness: during most of the year the capacity of the factories had been taxed, so that the production of goods is perhaps normal.

Prices at the close of the month are higher than at the middle, and the present level is materially higher than at this time last year. The market in New York is very firm, corresponding with conditions elsewhere. Receipts of rubber at Pará since the beginning of the crop season, as compared with the same months for the three years preceding, were as follows:

	1900.	1901.	1902.	1903.
July.....*tons.*	860	1260	1290	1280
August	1290	1290	1370	1230
September	1280	1940	1670	2010
October	2350	2640	2280	2440
November	2200.	2970	2650	*a* 2470
Total, Five months	7,980	10,100	9,260	9,430

[*a* To November 26, 1903.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on November 30—the current date:

PARA.	Dec. 1, '02.	Nov. 1, '03.	Nov. 30.
Islands, fine, new	73@74	97@ 98	92@ 93
Islands, fine, old	@	@	@
Upriver, fine, new	79@80	102@103	95@ 96
Upriver, fine, old	84@85	104@105	97@ 98
Islands, coarse, new	49@50	57@ 58	55@ 56
Islands, coarse, old	@	@	@
Upriver, coarse, new	65@66	82@ 83	79@ 80
Upriver, coarse, old	@	@	@
Caucho (Peruvian) sheet	55@56	63@ 64	60@ 61
Caucho (Peruvian) ball	63@64	72@ 73	71@ 72

The market for other sorts in New York on which prices have been better maintained, as a rule is as follows:

AFRICAN.			
Sierra Leone, 1st quality	85	@86	
Massai, red	85	@86	
Benguella	69	@70	
Cameroon ball	62	@63	
Gaboon flake		@	
Gaboon lump	46	@47	
Niger paste		@	
Accra flake	31	@32	
Accra buttons	None here		
Accra strips	None here		
Lopori ball, prime	84	@85	
Lopori strip, do	77	@78	
Ikelemba	None here		
Madagascar, pinky	80	@81	
CENTRALS.			
Esmeralda, sausage	70	@71	
Guayaquil, strip	59	@60	
Nicaragua, scrap	69	@70	
Panama, slab	52	@53	
Mexican, scrap	69	@70	
Mexican, slab	50	@51	
Mangabeira, sheet	55	@56	
EAST INDIAN.			
Assam	78	@79	
Borneo		@	

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	5$600	Upriver, fine	6$800
Islands, coarse	2$600	Upriver, coarse	4$900

Exchange, 12 1/16 *d.*

Last Manáos advices (November 28):

Upriver, fine.....6$400/4$300 Upriver, coarse. ..... 4$300

Exchange, 12 1/16 *d.*

NEW YORK RUBBER PRICES FOR OCTOBER (NEW RUBBER).

	1903.	1902.	1901.
Upriver, fine	1.00@1.09	74@79	84@90
Upriver, coarse	82@ 91	60@64	63@66
Islands, fine	96@1.06	72@74	78@85
Islands, coarse	56@ 68	46@49	46@48
Cametá, coarse	56@ 67	47@49	48@49

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.	Fine and Medium.	Coarse.	Total 1903.	Total 1902.	Total 1901
Stocks, September 30 *.tons*	88	9 =	97	198	523
Arrivals, October	535	333 =	868	893	500
Aggregating	623	342 =	965	1091	1023
Deliveries, October	548	335 =	883	917	537
Stocks, October 31	75	7 =	82	174	486

	PARÁ.			ENGLAND.		
	1903.	1902.	1901.	1903.	1902.	1901.
Stocks, Sept. 30...*tons*	240	86	190	240	1275	980
Arrivals, October	2381	2300	1850	995	800	645
Aggregating	2621	2386	2040	1235	2075	1625
Deliveries, October	2276	2241	1790	800	825	600
Stocks, Oct. 31	345	145	250	435	1250	1025

	1903.	1902.	1901.
World's visible supply, October 31.....*tons*	2372	3038	2797
Pará receipts, July 1 to October 31	6400	6179	6682
Pára receipts of Caucho, same dates	1484	431	448
Afloat from Pará to United States, Oct. 31	700	554	408
Afloat from Pará to Europe, October 31	810	915	628

In regard to the financial situation, Albert B. Beers, (broker in India-rubber, No. 58 William street, New York), advises us as follows:

"During November the money market has ruled very firm for all classes of loans, with very little demand for commercial paper, even from out-of-town banks, rates being nominally 6@7½ per cent. according to grade."

Ceylon Rubber Exports.

OFFICIAL statement of shipments of cultivated rubber for the first ten months of 1903:

To Great Britain *pounds*	30,009
To Belgium	156
To Germany	1,672
To United States	400
Total, ten months	32,237
Total, 12 months, 1902	21,168
Total, 12 months, 1901	7,392

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The results of the rubber sale of October 23 were very satisfactory, the estimations based on the September sale being fully maintained, and in some cases prices exceeding estimations by 1 per cent. Of 454 tons exposed, 433 found buyers. At the next monthly sale, on November 18, about 502 tons will be offered, some of the larger lots, with their estimations, being:

78 tons	Uelé *francs*	9 75
63	" Aruwimi	9.90
53	" Lopori I	9 90
41	" Lopori II	8.50
26	" Mongalla	9.90
23	" Upper Congo	10.17½
15	" Equateur I	10.35
12	" Equateur II	10.

C. SCHMID & CO.

Antwerp, November 12, 1903.

[REPORTS received at New York indicate that the results obtained at the above sale were very irregular, some lots of the highest grades bringing relatively less than lower grades. There was an average decline from valuations of about 75 *centimes* per kilogram, or 5⅛ to 6 cents per pound. This decline, however, was less than, in some quarters, had been anticipated, with the result that the Antwerp sale had an influence in rendering markets elsewhere more firm.]

RUBBER ARRIVALS AT ANTWERP.

OCT. 28.—By the *Albertville*, from the Congo:

Bunge & Co	(Société Isangi) *kilos*	2,000	
Do	(Chemins de fer des Grand Lacs)	15,300	
Do	(Société Générale Africaine)	107,000	
Do	(Société Anversoise)	37,000	
Société A B I R		137,000	
Comptoir Commercial Congolais		7,000	
Société Equatoriale Congolaise		5,800	
L. & W. Van de Velde	(Cie. du Kasai)	85,000	
Société Coloniale Anversoise.	(Belge du Haut Congo)	23,000	
Do	(Cie. de Lomami)	500	
Charles Dethier	(Société Belgika)	1,250	
Cie. Commerciale des Colonies		350	422,100

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots—in cents per pound; again no change of importance to be noted:

Old Rubber Boots and Shoes—Domestic	6⅞ @ 7
Do —Foreign	6¼ @ 6⅜
Pneumatic Bicycle Tires	4 @ 4⅛
Solid Rubber Wagon and Carriage Tires	7
White Trimmed Rubber	8¾ @ 9
Heavy Black Rubber	4¼
Air Brake Hose	2⅛ @ 2¼
Fire and Large Hose	2
Garden Hose	1⅛
Matting	1

RUBBER ARRIVALS AT ANTWERP.

NOV. 16.—By the *Anversville*, from the Congo:

Bunge & Co	(Société Générale Africaine) *kilos*	187,000	
Do	(Chemins de fer des Grand Lacs)	17,000	
Do	(Société Anversoise)	20,000	
Do	Société Isangi)	4,000	
Do	(Cie. du Kassi)	44,000	
Société A B I R		41,000	
Société Coloniale Anversoise	(Belge du Haut Congo)	20,000	
Do	(Société La Lulonga)	17,000	
Charles Dethier	(La Haut Sangha)	7,000	
Cie. Commerciale des Colonies		400	
Comptoir des Produits Coloniaux		4,000	
Do		600	
Do	(Cie. de la N'Goko)	8,000	
Th. De Bruyne	(Cie. du Kouango)	7,000	
Evrard Havenith	(Société Andrea)	1,000	378,000

Liverpool.

WILLIAM WRIGHT & CO. report [November 2]:

Fine Pard.—The market, generally, has had a downward tendency. In the early part of the month spot prices for Upriver were forced down from 4*s.* 7¾*d.* to 4*s.* 3½*d.*; then a sharp reaction of 4*s.* 5½*d.* followed by an equally sharp decline to 4*s.* 2½*d.*—a drop during the month of 5*d.* per pound. Manufacturers, generally, have held aloof, watching the manipulation of "bear operators" who advanced or depressed prices 1*d.* to 2*d.* per pound a day, by simply frightening second hand operators. The statistical position is still sound, with no superabundance of raw material, but naturally one cannot expect in face of the heavy receipts due next year for prices to remain at their late high level, but the extraordinary sudden fluctuations of this month simply disorganize trade, and the sooner a proper level of prices is reached the better.

EDMUND SCHLÜTER & CO. report Liverpool stocks:

	Sept. 30.	Oct. 31.		Sept 30.	Oct. 31.
Pará—1st hands	82	271	tons.	Peruvians	31	51	tons.
Fine	43	179	"	Africans	217	235	"
Medium	19	29	"	Mollendo	420	323	pkg.
Negroheads	29	63	"	Mangabeira	122	70	"
Pará—2d hands	161	164	"	Pernambuco	111	110	"
Fine	131	126	"	Maniçoba	1023	1626	"
Medium	9	9	"	Ceará	174	349	"
Negroheads	21	29	"	Assare	152	122	"
Total Pará	243	435	"				

London.

EDWARD TILL & CO. [November 1] report stocks:

		1903.	1902.	1901.
LONDON	Pará sorts *tons*	—	—	—
	Borneo	20	115	137
	Assam and Rangoon	4	4	77
	Other sorts	199	319	477
	Total	223	438	691
LIVERPOOL	Pará	435	1237	876
	Other sorts	527	662	1035
Total, United Kingdom		1185	2337	2602
Total, October 1		866	2464	2802
Total, September 1		1364	2731	2736
Total, August 1		1781	3053	2914
Total, July 1		2285	3595	3128
Total, June 1		2248	3687	3502
Total, May 1		2539	3788	3597

PRICES PAID DURING OCTOBER.

	1903.	1902.	1901.
Pará fine, hard	4/ 2⅛@4/8	3/1¾@3/3¾	3/4½@3/6½
Do soft	4/ 0½@4/7½	3/0½@3/1½	3/6½@3/7¾
Negroheads, scrappy	3/ 5⅛@3/8	2/7 @2/8½	2/8
Do Islands	2/ 6 @2/8	2/7 @2/8½	No sales.
Bolivian	No sales.	3/3 @3/4	3/7 @3/8

NOVEMBER 13.—The market for Pará sorts has shown increased weakness, with a decline during the past week of 1½*d.* to 2*d.* per pound. Considerable business has been done at 3*s.* 10*d.* for soft cure Fine for spot and near delivery, and hard cure Fine at 3*s.* 11*d.* Hard Entrefine sold down to 3*s.* 9*d.* Small sales of scrappy Negroheads forward at 3*s.* 3⅛*d.*, and Cametás down to 2*s.* 3¾*d.* Peruvians quiet; ball sold at 3*s.* 3⅛*d.* for forward delivery; slab quoted at 2*s.* 6½*d.*, and fine at 3*s.* 10½*d.* Medium grades [Africans and Centrals], in sympathy with Parás, are rather easier and in good demand. At to-day's auctions all desirable lots found buyers at about steady rates. Colombian fair to good white scrap and sheet at 2*s.* 9*d.*@3*s.*; white scrap softish 2*s.* 8*d.*@2*s.* 8¾*d.* Ecuador scrap and brown ball 3*s.* 0½*d.* Madagascar: Fair Majunga 2*s.* 4¾*d.*; fair to good dark coated 2*s.* 2*d.*@2*s.* 3*d.* Mozambique: Good clean stickless sausage, 3*s.* 6⅛*d.*; fair to good Beira ball and sausage, 3*s.* 5*d.*@3*s.* 5½*d.*; fair to good Lamu ball 3*s.* 1⅛*d.*@3*s.* 2¼*d.* Nyassa small red ball slightly heated 3*s.* 3¼*d.* Borneo mixed part fair and inferior 1*s.* 10*d.*@1*s.* 10½*d.*

Balata.—Sixty seven bales Block sold, mixed at 1*s.* 7½*d.*@1*s.* 8*d.*; loaded inferior at 1*s.* 2*d.*

Rubber Receipts at Manaos.

DURING October and the first four months of the crop season for three years [courtesy of Messrs. Witt & Co.]:

FROM—	OCTOBER. 1903.	1902.	1901.	JULY-OCTOBER. 1903.	1902.	1901.
Rio Purús *tons*	215	431	494	1101	1199	1374
Rio Madeira	254	160	470	1009	894	1064
Rio Juruá	158	38	277	414	269	581
Rio Javary—Iquitos	581	153	320	766	308	475
Rio Solimões	99	282	247	183	445	504
Rio Negro	2	4	1	17	69	17
Total	1309	1068	1809	3490	3184	4015
Caucho	87	62	123	428	321	514
Total	1396	1130	1932	3918	3505	4529

Bordeaux.

R. HENRY favors THE INDIA RUBBER WORLD with details of arrivals of rubber for 1903 which permit the record to be brought down to November 1, as follows [weights in kilograms]:

GRADES.	Jan.-June.	Jul.-Sept.	Oct.	Total.
Soudan twists, Soudan niggers, Conakry niggers	356,200	266,700	64,500	687,400
Gambia	77,000	9,400	—	86,400
Bassam	25,500	2,550	2 000	30,050
Lahou	—	2,466	—	2,466
Madagascar	—	2,100	—	2,100
Java	—	1,500	—	1,500
Congo sorts	18,000	18,000	6,000	42,000
Mexican	1,500	—	—	1,500
Other sorts	600	—	—	600
Totals	478,800	302,716	72,500	854,016

Total arrivals for the whole of 1902 were 678,400 kilos and in the preceding year only 235.380 kilos. The figure for 1900 was 239.522 kilos and for 1899 only 175,589.

PRICES NOVEMBER 17 IN FRANCS PER KILOGRAM.

Sierra Leone sorts:		Bassam lumps	5. @ 6.
Niggers, red I.	9.50@10.10	Gold Coast	6. @ 6.10
Niggers, black, I.	9.10@ 9.50	Madagascar sorts:	
Niggers, II, III.	6.50@ 8.50	Majunga	5.75@ 7 25
Twists, fine	9.30@ 9.40	Tamatave	7. @ 8.50
Twists, ordinary	8.75@ 9.	Niggers	4.50@ 7.50
Cassamance	4.10@ 8.10	Mexican scrap	8. @ 9.

[10 Francs per Kilo=87½ cents per Pound.]

Gutta-Percha.

WEISE & CO. (Rotterdam) report exports from Singapore for the first nine months of five years past as follows:

	1899.	1900.	1901.	1902.	1903.
Tons	5650	4753	4538	3283	2603

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

October 31.—By the steamer *Nederlander*, from La Guayra:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total
Middleton & Co.	5,300	.....	.....	.....=	5,300

November 4.—By the steamer *Cearense*, from Manáos and Pará:

United States Rubber Co.	218,800	40,000	65,600	700=	325,100
New York Commercial Co.	126,000	35,400	40,600	300=	202,300

Poel & Arnold	84,000	13,300	19,200	. ...=	116,500
A. T. Morse & Co	26,200	5,600	77,900	300=	110,000
Lionel Hagenaers & Co.	44,100	17,800	9,600	....=	71,500
William Wright & Co	12,700	3,200	39,100	.....=	55,000
Hagemeyer & Brunn	7,100	1,000	900	.....=	9,000
Total	518,900	116,300	252,900	1,300=	889,400

November 10.—By the steamer *Dunstan*, from Manáos and Pará:

A. T. Morse & Co	112,000	13,100	72,100	.....=	197,200
Poel & Arnold	113,000	15,400	30,700	4,300=	163,400
United States Rubber Co.	34,600	5,500	54,100	2,700=	96,900
New York Commercial Co.	45,300	5,900	19,100	300=	70,600
Lionel Hagenaers & Co.	13,000	.....	2,000	.....=	15,000
William Wright & Co	4,700	1,400	8,100	.....=	14,200
Hagemeyer & Brunn	7,000	1,000	1,000	.... =	9,000
Thomsen & Co	4,700	300	1,900	....=	6,900
Total	334,300	42,600	189,000	7,300=	573,200

November 17.—By the steamer *City of Washington*, from Mollendo (via Colon):

New York Commercial Co.	14,000	.....	.....	.....=	14,000

November 24.—By the steamer *Hubert*, from Manáos and Pará:

United States Rubber Co.	273,800	41,600	62,300	.....=	377,700
A. T. Morse & Co.	113,200	17,600	199,600	7 800=	338,200
New York Commercial Co.	100,900	21,600	93,800	400=	216,700
Poel & Arnold	82,400	19,500	47,900	500=	150,300
William Wright & Co	12,000	700	10,700	.....=	23,400
Lionel Hagenaers & Co.	12,200	.....	1,400	.....=	13,600
Lawrence Johnson & Co.	9 600	1,000	.....	....=	10,600
Hagemeyer & Brunn	5,800	2,300	900	.....=	9,000
Thomsen & Co	4,700	500	1,400	....=	6,600
Total	614,600	104,800	418,000	8,700=	1,146,100

[NOTE.—The steamer *Amazonense*, from Pará, is due at New York about December 3, with 575 tons of Rubber and no Caucho.]

PARA RUBBER VIA EUROPE.

NONE REPORTED.

OTHER ARRIVALS AT NEW YORK

CENTRALS.

	POUNDS.	
OCT. 26.—By the *Havana*=Mexico:		
Harburger & Stack	1,000	
Samuels & Cummings	1,000	
E. N. Tibbalis & Co	300	
H. Marquardt & Co	200	
E. Steiger & Co	300	2,800
OCT. 27.—By the *Seguranca*=Colon:		
Hirzel, Feltman & Co	18,500	
Lawrence Johnson & Co	10,400	
Isaac Brandon & Bros	5,800	
A. Santos & Co	2,400	
Piza Nephews & Co	3,700	
Aidanque Bros. & Co	3,000	
G. Amsinck & Co	2,900	
American Trading Co	1,900	
Dumarest & Co	1,800	
Meyer Hecht	1,800	
Jiminez & Escobar	1,200	
J. Menendez & Co	700	
Roldan & Van Sickle	700	
J. A. Pauli & Co	400	
Eggers & Heinlein	500	
For Antwerp	4,800	51,600
OCT. 29.—By the *Soldier Prince*=Antwerp:		
J. H. Rossback & Bros		25,000
OCT. 28.—By the *Alene*=Cartagena, etc.:		
J. Ferro	2,500	
Kunhardt & Co	1,200	
Jimmenez & Escobar	1,000	
Isaac Brandon & Bros	500	
G. Amsinck & Co	1,500	6,700
OCT. 30.—By *El Norte*=New Orleans:		
Manhattan Rubber Mfg. Co	3,000	
A. T. Morse & Co	3,500	
A. N. Rotholz	2,500	9,000
NOV. 2.—By the *Etruria*=Liverpool:		
A. T. Morse & Co	6,000	
Robinson & Tallman	4,500	10,500
NOV. 4.—By the *Allianca*=Colon:		
G. Amsinck & Co	5,200	
Livingstone & Co	2,200	
Meyer Hecht	2,000	
H. Marquardt & Co	1,600	
L. N. Chemedlin & Co	1,500	
Eggers & Heinlein	1,100	
Isaac Brandon & Bros	800	
Smithers, Nordenholt & Co	700	
E. Scheitlin & Co	600	
A. N. Rotholz	400	
Harburger & Stack	300	
R. G. Sarthold	200	
Silva, Bussenius & Co	200	16,800
NOV. 4.—By the *Valencia*=Greytown, etc.:		
E. B. Strout	7,500	
G. Amsinck & Co	4,000	
Livingstone & Co	3,500	
Andreas & Co	2,000	
Graham, Hinkley & Co	1,100	
Isaac Brandon & Bros	500	
A. D. Straus & Co	200	
Kunhardt & Co	100	18,900
NOV. 7.—By *El Dia*=New Orleans:		
A. T. Morse & Co	7,500	
Manhattan Rubber Mfg. Co	1,000	
Eggers & Heinlein	1,000	9,500
NOV. 10.—By the *Altai*=Cartagena:		
Isaac Kubie & Co	4,500	
D. A. DeLima & Co	1,000	
J. H. Recknagel & Co	1,000	6,500

CENTRALS—Continued.

NOV. 10.—By the *Niagara*=Mexico:		
George A. Alden & Co		9 000
NOV. 10.—By the *Yucatan*=Colon:		
Hirzel, Feltman & Co	34,500	
G. Amsinck & Co	15,400	
Lawrence Johnson & Co	11,800	
Roldan & Van Sickle	9,700	
A. Santos & Co	6,600	
American Trading Co	4,000	
Ascensio & Cassio	1,400	
Dumarest & Co	1,100	
Meyer Hecht	1,200	
Piza Nephews & Co	900	
Eggers & Heinlein	800	
Mecke & Co	700	
E. Steiger & Co	500	
H. Marquardt & Co	300	
W. Loaiza & Co	200	
D. N. Carrington & Co	100	89,200
NOV. 14.—By the *Esperanza*=Mexico:		
F. Probst & Co	2,500	
H. Marquardt & Co	2,000	
Thebaud Brothers	1,500	
Harburger & Stack	800	
American Trading Co	200	
L. N. Chemedlin & Co	300	7,000
NOV. 14.—By the *Cameous*=Bahia:		
J. H. Rossbach & Bros	30,000	
Hirsch & Kaiser	19 000	49,000
NOV. 17.—By *Alleghany*=Greytown, etc:		
G. Amsinck & Co	7,500	
E. B. Strout	3,500	
Isaac Brandon & Bros	4 000	
D. A. DeLima & Co	3,500	
Roldan & Van Sickle	1,500	
J. Ferro	1,000	
Kunhardt & Co	500	21,500
NOV. 17.—By the *City of Washington*=Colon:		
G. Amsinck & Co	5,000	
Livingstone & Co	2,200	
Smithers, Nordenholt & Co	3,400	
Meyer Hecht	2 000	
D. A. De Lima & Co	800	
Andreas & Co	700	
Silva, Bussenius Co	500	
Eggers & Heinlein	300	14,900
NOV. 21.—By *Havana*=Mexico:		
H. Marquardt & Co	5,000	
E. Steiger & Co	800	
Thebaud Bros	500	
E. N. Tibbals & Co	600	6,600
NOV. 21.—By the *Tennyson*=Bahia:		
J. H. Rossbach & Bros	30,000	
Amerman & Patterson	6,000	36,000

AFRICANS.

	POUNDS.	
OCT. 30.—By the *Cedric*=Liverpool:		
George A. Alden & Co.	9,000	
Rubber Trading Co	6,000	15,000
NOV. 2.—By the *Philadelphia*=London:		
Henry A. Gould	8,500	
George A. Alden & Co	7,000	15,500
NOV. 2.—By the *Etruria*=Liverpool:		
A. T. Morse & Co		15,000
NOV 2.—By the *Belgravia*=Hamburg:		
A. T. Morse & Co	13,000	
Rubber Trading Co	5,000	18,000
NOV. 5.—By the *Peninsular*=Lisbon:		
United States Rubber Co	125,000	
Rubber Trading Co	11,000	136,000

AFRICANS—Continued.

NOV. 7.—By the *Campania*=Liverpool:		
A. T. Morse & Co	7,500	
Robinson & Tallman	4,500	
William Wright & Co	3,500	15,500
NOV. 7.—By the *St. Louis*=London:		
George A. Alden & Co		11,500
NOV. 10.—By the *Vaderland*=Antwerp:		
Poel & Arnold	495,000	
A. T. Morse & Co	40 000	535,000
NOV. 11.—By the *Oceanic*=Liverpool:		
Gorge A. Alden & Co	37,000	
A. T. Morse & Co	20,000	
United States Rubber Co	12,000	
Poel & Arnold	8,000	77,000
NOV. 12.—By the *Pennsylvania*=Hamburg:		
George A. Alden & Co	4,000	
Rubber Trading Co	3,500	7,500
NOV. 16.—By *Umbria*=Liverpool:		
Henry A. Gould Co	13,500	
George A. Alden & Co.	6 000	
A. T. Morse & Co	4,500	24,500
NOV. 16.—By the *Cymric*=Liverpool:		
George A. Alden & Co	22,500	
Rubber Trading Co	5,000	27,500
NOV 17.—By the *Kroonland*=Antwerp:		
George A. Alden & Co	56,000	
United States Rubber Co	15,000	71,000
NOV. 19.—By the *Teutonic*=Liverpool:		
A. T. Morse & Co	11,000	
Poel & Arnold	3,500	
Rubber Trading Co	4,500	19,000
NOV. 20.—By the *Patricia*=Hamburg:		
Robinson & Tallman	22,000	
George A. Alden & Co	16,500	
Poel & Arnold	13 000	
Rubber Trading Co	7,500	59,000
NOV. 21.—By the *Lucania*=Liverpool:		
United States Rubber Co	28,000	
A. T. Morse & Co	6,500	
Poel & Arnold	1,500	
William Wright & Co	5,000	43,000

EAST INDIAN.

	POUNDS.	
OCT. 26.—By the *Indrawadis*=Singapore:		
Robert Branss & Co	22,500	
Rubber Trading Co	27,500	50,000
NOV. 10.—By the *Baron Dreisen*=Singapore:		
William Wright & Co	27,000	
Rubber Trading Co	8,500	35,500
NOV. 14.—By the *Brewster*=Singapore:		
Robert Branss & Co	20,000	
William Wright & Co	17,000	37,000
NOV. 16.—*Minneapolis*=London:		
George A. Alden & Co		17,000
PONTIANAK.		
OCT. 26.—By the *Indianapolis*=Singapore:		
Robert Branss & Co	325,000	
Poel & Arnold	285,000	
W. R. Russell & Co	100,000	710,000
OCT. 26.—By the *Arabic*=Singapore:		
Robert Branss & Co	130,000	
Rubber Trading Co	15,000	145,000

NOV. 10.—By the *Baron Driesen*=Singapore:

William Wright & Co.	560,000	
Rubber Trading Co.	55,000	
W. R. Russell & Co.	55,000	
Poel & Arnold	53,000	723,000

NOV. 14.—By the *Braemer*=Singapore:

Robert Brauss & Co	650,000	
William Wright & Co.	310,000	
Haebler & Co.	110,000	
Poel & Arnold	50,000	1,020,000

GUTTA-PERCHA AND BALATA.

	POUNDS.
NOV. 10.—By the *Baron Driesen*=Singapore:	
Poel & Arnold	5,000
NOV. 20.—By the *Patricia*=Hamburg:	
To Order	6,500
BALATA.	
OCT. 26.—By the *New York*=London:	
Earle Brothers	3,500
NOV. 7.—By the *Maracas*=Trinidad:	
Frame & Co.	2,500
Cadenas & Co	1,000
Middleton & Co.	1,000 4,500
NOV. 16.—By the *Minneapolis*=London:	
Earle Brothers	4,500
George A. Alden & Co.	1,500 6,000
NOV. 20.—By the *Patricia*=Hamburg:	
To Order	1,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—OCTOBER.

Imports:	POUNDS.	VALUE.
India-rubber	3,487,947	$2 508,179
Gutta-percha	25,764	13,082
Gutta-jelutong (Pontianak)	2,697,644	67,821
Total	6 211,355	$2.589,082
Exports:		
India-rubber	237,681	$170,204
Reclaimed rubber	86,841	11,076
Rubber Scrap Imported	2,360,129	$120,913

BOSTON ARRIVALS.

	POUNDS.
OCT. 5.—By the *Mayflower*=Liverpool:	
George A. Alden & Co.—African	3,379
OCT. 6.—By the *Kingston*=Antwerp:	
George A. Alden & Co.—African	15,625
OCT. 6.—By the *Columbian*=London:	
George A. Alden & Co.—East Indian	27,230
OCT. 13.—By the *Cambrian*=London:	
George A. Alden—Gutta-percha	5,374
OCT. 24.—By the *Sylvania*=Liverpool:	
George A. Alden & Co.—African	4,065
OCT. 27.—By the *Devonian*=Liverpool:	
George A. Alden & Co.—African	1,052
Total	56,825

[Value, $39,766.]

OCTOBER EXPORTS OF INDIA-RUBBER FROM PARA (IN KILOGRAMS).

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Frank da Costa & Co.	52,142	5,446	114,896	1,500	173,984	111,328	5,874	39,816	—	157,018	331,002
Cmok, Schrader & Co.	37,400	4,080	40,600	—	82,080	155,380	12,410	72,020	7,800	247,610	329 690
Adelbert H. Alden	48,910	10,780	21,860	312	81,862	79,660	8,185	47,330	1,700	136,875	218,737
Neale & Staats	—	—	97,328	—	97,328	64,008	5,544	4,108	—	73,660	170,988
J. Marques & Co.	14,906	1,177	3.529	—	19 612	32,044	2,241	12,381	—	46,666	66,278
R. Suarez & Co.	—	—	—	—	—	32.211	10,248	5,634	—	48,093	48,093
Denis Crouan & Co	9,118	830	10,700	—	20,648	16,326	669	10,442	—	27 437	48,085
Singlehurst Brocklehurst & Co.	—	—	—	—	—	19,854	1,430	8,736	—	30,020	30,020
Kanthack & Co.	17,406	4,820	7,292	—	29,518	—	—	—	—	—	29,518
Pires, Teixeira & Co.	20,424	—	3,887	—	24,311	—	—	—	—	—	24,311
A. F. Vellozo & Co.	—	—	—	—	—	—	692	262	—	954	954
Direct from Manáos	333.040	67,830	69,529	12,427	482,826	393,561	85,296	61,721	35,280	575.858	1.058,684
Total for October	533,346	94,963	369,621	14.239	1,012,169	904,372	132,589	262,450	44 780	1,344,191	2.356,360
Total for January-Sept.	4,982,446	1,200,360	3,628,855	1,076,026	10,887,687	6,100,68c	793,517	1,802,095	2,666,976	11,363,268	22,250,955
TOTAL SINCE JANUARY 1.	5,515,792	1,295,323	3.998,476	1,090,265	11.899,856	7,005,052	926,106	2,064.545	2,711.756	12.707,459	24,607,315

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	4.243.279	598,381	3,644,898
January-August	38,655,119	1,984.816	36,670,303
Nine months, 1903	42,898,398	2,583.197	40,315,201
Nine months, 1902	37,610,569	2,537.333	35,073,236
Nine months, 1901	40,481.040	2,919.422	37,561,618

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	4,158,896	3.472,560	686,336
January-August	35,090,272	25,428,032	9,662,240
Nine months, 1903	39,249,168	28,900,592	10.348.576
Nine months, 1902	34,992,496	23,040,192	11,952,304
Nine months, 1901	39.174,960	24.182,480	14,992.480

GERMANY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	2,379,080	1,104,620	1,274,460
January-August	23.468,940	7,768,420	15,700,520
Nine months, 1903	25,848,020	8,873,040	16,974,980
Nine months, 1902	24,828,100	10,200,960	14,627,140
Nine months, 1901	21,246,060	7,695,820	13,550,240

ITALY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	42,020	22,660	19,360
January-August	1,075,800	100,760	975,040
Nine months, 1903	1,117,820	123,420	994.400
Nine months, 1902	1,046,540	82,580	963.960
Nine months, 1901	1,122,220	165.440	956,780

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	1,015,740	708,400	307,340
January-August	10,738,420	6,118,200	4,620,220
Nine months, 1903	11,754,160	6,826,600	4.927,560
Nine months, 1902	12,490,940	7,109,960	5,380,980
Nine months, 1901	12,116,060	7.713,420	4,402,240

AUSTRIA-HUNGARY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1903	152,680	3,300	149,380
January-August	1,984,400	17,160	1,967,240
Nine months, 1903	2,137,080	20,460	2,116,620
Nine months, 1902	1,997.380	11,220	1.986,160
Nine months, 1901	1,926,760	25.080	1.901.680

NOTE.—German statistics include Gutta-percha, Balata, old rubber, and substitutes. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

*General Commerce.